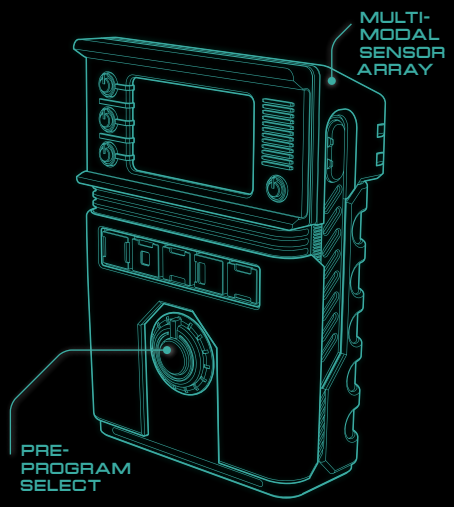
STAR TREK™
ADVENTURES
THE ROLEPLAYING GAME
Technical Manual

.: TRICORDERS

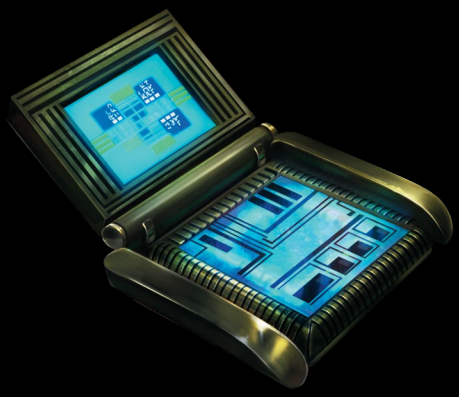


STARFLEET
TRICORDER 2256
SCHEMATIC VIEW

STARFLEET
TRICORDER 2263

KLINGON
TRICORDER 2285

FERENGI
TRICORDER 2368



ROMULAN
TRICORDER 2371

STARFLEET
ENGINEERING
TRICORDER 2371,
TRV-1 VIII

CARDASSIAN
TRICORDER 2373

STARFLEET
TRICORDER 2371,
TR-590 X

STARFLEET TRICORDER
2384, SPECIAL ISSUE
NX-76884

CBS STUDIOS, INC., AUREA FRENIERE,
WILMAR BALLESPÍ

.:MEDICAL EQUIPMENT

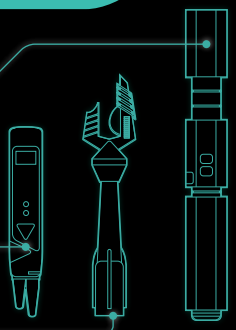
STARFLEET HYPOSPRAY 2259

STARFLEET HYPOSPRAY 2267

STARFLEET HYPOSPRAY 2361

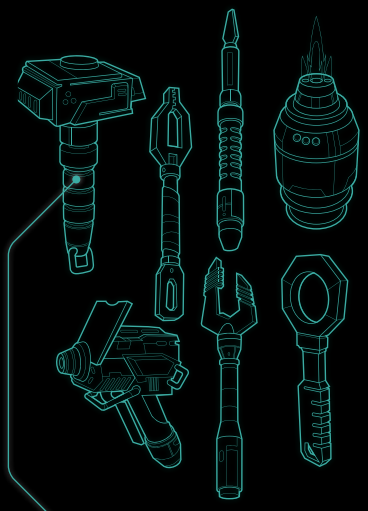
STARFLEET MEDICAL TRICORDER 2371, TR-580 VII

.:HANDHELD TOOLS



STARFLEET TOOLS 2373
SCHEMATIC VIEW

HYPERSPANNER
SONIC DRIVER
MAGNETIC PROBE



PERCUSSIVE MAINTENANCE ATTACHMENT

MULTI-MITT CYBERNETIC IMPLANT
SCHEMATIC VIEW

.:PERSONAL ACCESS DISPLAY DEVICES

STARFLEET PADD 2260

STARFLEET PADD 2372

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STAR TREK ADVENTURES

TECHNICAL MANUAL

INTRODUCTION 1
The Right Tools for the Job 2

CHAPTER1
SUPPLEMENTAL GAME MECHANICS .7
Character Options 8
Starship Options. 14
Advanced Technology 23

CHAPTER 2
STANDARD EQUIPMENT 29
Common Technology 30

CHAPTER 3
DIPLOMATIC ASSETS 45
The Purview of Diplomats. 46
Universal Translators 48
Answering Distress Calls 52

CHAPTER 4
SCIENTIFIC EQUIPMENT 55
An Array of Devices. 56
Scanning Apparatus 58
Away Teams in Action. 61
Non-Federation Science 65

CHAPTER 5
MEDICAL TECHNOLOGY. 69
Medical Devices. 70
Medical Treatments. 74
Medical Enhancements. 76

CHAPTER 6
ENGINEERING TECHNOLOGY 81
Engineering 101 82
Mechanical Engineering 83
Digital Engineering 88
Engineering Toolbox 90

CHAPTER 7
WEAPONS AND TACTICAL GEAR. . .93
The Armory 94

CHAPTER 8
STARSHIP TECHNOLOGIES 107
An Engineer's Domain 108
Defensive Systems
and Weapons. 110
Propulsion Technologies. 115
Other Ship Systems. 121

.:INTRODUCTION

THE RIGHT TOOLS FOR THE JOB

"I INITIATED A RAPID REPEATING EMERGENCY TRANSPORT SEQUENCE AND BEAMED THE ENTIRE CREW BEFORE WE CRASHED."

- ENSIGN SAM RUTHERFORD

RODRIGO GONZALEZ TOLEDO

COMMODORE NELLA XEN

Welcome aboard! I'm Commodore Nella Xen, commanding the U.S.S. Challenger. *If there's one thing I've learned over my decades of service in Starfleet, it's that we're more effective in our missions when we have reliable, functional tools to use. This supplement is packed full of useful tools, gear, weapons, and advice for you and your crew to use as you see fit.*

FOR NEARLY 60 YEARS, THE *STAR Trek* franchise in its many forms has had a significant influence on technological advancements and innovations made in the real world. Many of the devices and technologies we take for granted on a day-to-day basis were either introduced or emphasized in a number of *Star Trek* series, episodes, novels, and more. Here are just a few notable ways *Star Trek* has influenced and impacted modern technology:

- **ARTIFICIAL INTELLIGENCE:** Android characters such as Data, Lal, and Soji; other artificial life-forms; Zora, the sentient starship in *Star Trek*: *Discovery*; and the interactive ship's computer present in other series all helped to spark interest in artificial intelligence (AI) and robotics, influencing both the popular perception of, and academic research in, these technical fields.
- **COMMUNICATION DEVICES:** The iconic flip-open communicator from the original series inspired the development of mobile phones, while the clickable combadges of later series predicted the development of easily portable (and wearable) wireless devices. Engineers and designers have often cited the franchise as a motivation for creating and miniaturizing portable communication devices.
- **MEDICAL DEVICES:** The tricorder, a multifunctional device used for scanning and analyzing, inspired the development of portable diagnostic tools. Current efforts to create real-life tricorder analogues are underway through a variety of competitions and technological initiatives.
- **REPLICATORS AND 3D PRINTING:** The idea of replicators foreshadowed modern 3D printing technologies, which are now used for manufacturing items for a wide variety of industries, including construction, entertainment, healthcare, and even food production.
- **SPACE EXPLORATION:** The optimistic view of space travel and discovery present in the franchise inspired generations of scientists and engineers, contributing to public interest and funding for space missions and related technological innovations.
- **SUSTAINABLE ENERGY:** The franchise's emphasis on the development and use of advanced energy sources encouraged discussions and innovations around renewable energy techniques and sustainable technologies.
- **TABLET TECHNOLOGY:** The Personal Access Display Devices (PADDs) used in *Star Trek: The Next Generation* and other series resemble modern tablet computers. The crews' use of touchscreens to enable portable computing helped shape the vision of tablet devices in use today.

- **VIRTUAL REALITY AND HOLOGRAPHY:** The holodeck concept presented in *The Animated Series* and *The Next Generation* influenced research into virtual reality (VR) and immersive environments, pushing forward developments in VR technology and related applications.

In addition, the *Star Trek* franchise has inspired countless scientists, engineers, and technologists across multiple generations in various ways, often serving as both a source of motivation and a vision for future possibilities. Here are some specific examples:

- **ETHICAL CONSIDERATIONS:** *Star Trek* stories frequently explore ethical dilemmas related to technology, such as the rights of artificial intelligence and medical ethics. These discussions encourage technologists to consider the moral implications of their work, shaping more responsible innovation.
- **INSPIRATION FOR CAREERS:** Many professionals in science and technology have cited *Star Trek* as a key factor in their career choices. The franchise's portrayal of exploration, innovation, diversity, and teamwork has inspired generations to pursue fields such as astrophysics, computer science, and engineering.
- **INTERDISCIPLINARY COLLABORATION:** The franchise emphasizes collaboration across multiple disciplines—scientists, engineers, healthcare workers, security personnel, and even diplomats—find ways to work together to be more effective. This model has influenced real-world projects, highlighting the importance of diversity within teams to tackle space exploration as well as global challenges like climate change.
- **PUBLIC ENGAGEMENT WITH SCIENCE:** *Star Trek* has helped popularize science and technology, making complex ideas more accessible to the general public. This engagement has led to increased interest in STEM (Science, Technology, Engineering, and Mathematics) fields among students. Educational workshops and events themed around the various series often encourage creativity and critical thinking.
- **ROLE OF GENDER DIVERSITY:** All the series within the franchise feature diverse characters in significant roles, promoting the idea that **anyone** can contribute to exploration, science, and technology. This has encouraged inclusivity and representation within these fields.

▷ THE EVER-EXPANDING STAR TREK CANON

This supplement was developed and published while several *Star Trek* projects were in active production. As a result, the details regarding the *Star Trek* universe, equipment, personnel, and locations may be contradicted or amended based on future episodes and other broadcast projects.

While official *Star Trek* canon consists only of what appears on screen, your group's game canon is what you choose to make it. Use as much or as little of this ***Technical Manual*** as you see fit, whether it remains adherent to *Star Trek* canon or not. **Make the *Star Trek* universe your own!**

- **TECHNICAL INNOVATION:** Engineers and inventors often look to the technologies depicted in *Star Trek* for inspiration. For example, concepts like warp drive and transporters have sparked serious discussions in theoretical physics, prompting research into faster-than-light travel and advanced transportation systems.
- **VISION OF THE FUTURE:** *Star Trek* presents a future where technology serves humanity and promotes equality. This optimistic view encourages scientists and engineers to aim for advancements that benefit society as a whole, reinforcing the idea that technology can solve complex problems and bring diverse viewpoints together to serve a common goal.

In essence, *Star Trek* has not only inspired real-life technological advancements, but has also shaped the modern culture of science and engineering, promoting ideals of collaboration, ethics, and innovation. Its impact continues to resonate to the present day, encouraging technological progress in ways that align with its vision of a hopeful future.

A WELL-STOCKED TOOLBOX

WELCOME TO THE ***STAR TREK ADVENTURES*** **Technical Manual**, where you, the gamemaster or player of a ***Star Trek Adventures*** mission or campaign, can learn more about the wide variety of technological systems and tools available for characters to use from across the many eras of play, how that technology functions, and how best to use the technology and devices available to your characters to support collaborative storytelling with your group. Gamemasters can also make use of the many random complication tables scattered throughout this supplement to challenge player characters as the situation in play demands.

Within this supplement, you'll discover a wealth of information regarding technology and gear from a variety of spacefaring civilizations, including the United Federation of Planets and Starfleet, the Klingon Empire, the Romulan Empire, the Cardassian Union, and more. From personal communicators to ship-mounted weapon systems, from alternative propulsion technologies to effective medical treatments, this supplement helps to fill your game's 2d20 mechanics toolbox with more options, as well as filling your characters' storage compartments with additional concepts and devices to use in a game situation.

▷ YESTERDAY'S ENTERPRISE

Star Trek Adventures can be used to tell stories in any *Star Trek* era, from the earliest days of the Federation in the 2100s to the 32nd century and beyond. No matter when your adventure is set—in 2151, 3189, or somewhere in between or beyond—the contents of this supplement can find a use. The essentials of *Star Trek* technology haven't changed much from era to era—32nd century phasers aren't all that different from 23rd century phasers, and personal communicators from across the timeline operate on the same basic principles. Technology improved, and, in many cases, got more compact or more streamlined, so you should have no problem using or adapting any item from this supplement.

SUPPLEMENT STRUCTURE

THIS ***TECHNICAL MANUAL*** PROVIDES DETAILED information you and your fellow players can use to help tell amazing *Star Trek*-style stories in any time period, from the early days of pre-Federation exploration in the 22nd century to the far future of the 32nd century.

Chapter 1: Supplemental Game Mechanics provides players with a wealth of new game mechanics, including 10 new character career event options and 16 new character talents; five new starship service records, 10 new starship talents, and mines as a new weapon type. The chapter also includes a discussion of alternative propulsion types and guidance on using and creating advanced technologies.

Chapter 2: Standard Equipment details some of the most commonly used gear across the many spacefaring civilizations in the *Star Trek* universe, including uniforms, PADDs, communication devices, replicators, and holography.

Chapter 3: Diplomatic Assets offers insight on Starfleet's Diplomatic Corps, the universal translator, second contact supplies, and provides guidance on how a crew might respond to distress calls. Also included are several complication tables designed to generate random problems with specific situations and devices.

Chapter 4: Scientific Equipment provides a wealth of information on a wide variety of scientific gear, detailed information on tricorders, and advice on conducting away missions and some of the gear an away team might utilize.

Chapter 5: Medical Technology presents information on medical practices and medical gear used by the many spacefaring civilizations present in the Orion Spur. The chapter provides details on sickbays, biobeds, assorted medical gear, medical treatments and drugs, and guidance on using transporters to support treatment. The chapter also includes information on medical enhancements such as various forms of chair support, genetic engineering, and cybernetics.

Chapter 6: Engineering Technology details mechanical engineering and materials, including guidance on diagnostic levels, transporters, turbolifts, and environmental and utility systems. The chapter also covers digital engineering elements, such as computer systems and their various components.

Chapter 7: Weapons and Tactical Gear arms gamemasters and players with detailed information on a wide variety of melee weapons, ranged weapons, and body armor from across the *Star Trek* universe.

Chapter 8: Starship Technologies details key starship technologies and their components, including defensive systems and weapons, propulsion technologies, and life support systems. The chapter also includes several complication tables you can use to generate random challenges for characters related to starship technologies.

USING THIS SUPPLEMENT

WITH THIS SUPPLEMENT AND THE ***STAR TREK Adventures*** core rulebook, you can plan unique *Star Trek* stories and situations, create interesting and cunning allies and adversaries for your group, equip your player characters and non-player characters with useful gear, and collaboratively tell dramatic and engaging stories with your players, in your very own *Star Trek*-style episode or ongoing series.

Characters of every department, from command to medical, can apply the technologies and gear presented in this book to deepen their gameplay experience and in-game actions. **Command** officers can make use of the diplomatic tools and advice presented to more effectively conduct first and second contact missions. **Engineers** and **scientists** can have more tools and systems at their disposal to discover and study scientific concepts and strange anomalies. **Security** personnel can make use of additional offensive and defensive technologies, both at the personal scale as well as ship-mounted technologies. **Conn** officers can experience the joys and challenges of known and new propulsion technologies and navigational systems. **Medical** personnel, meanwhile, may utilize a wealth of medical treatments and technologies to more effectively diagnose and treat their patients.

Now, gather your players, your dice and other gaming gear, and your favorite snacks. The away team is assembling in transporter room two; it's time to gear up and go exploring!

▷ NON-STARFLEET CAMPAIGNS

While this supplement was written with the assumption that the majority of gaming groups will be playing Starfleet crews, you can use the contents to enhance adventures and campaigns featuring **non-Starfleet** crews as diverse as the *Star Trek* setting. Starfleet is a tiny organization compared to the hundreds of other vessels and starships plying the galactic space lanes, and the Galaxy is big enough for all of them to have their stories told around the game table.

CHAPTER 1

SUPPLEMENTAL GAME MECHANICS

1.1	CHARACTER OPTIONS	8
1.2	STARSHIP OPTIONS	14
1.3	ADVANCED TECHNOLOGY	23

EREN ARIK

.:CHAPTER 1.1

CHARACTER OPTIONS

"TRANSPORTER TECHNOLOGY IS VERY NEW. I'M SURE HUMANS WERE EQUALLY FRIGHTENED WHEN THE AUTOMOBILE WAS INTRODUCED, OR THE AIRPLANE."

- DOCTOR PHLOX

RODRIGO GONZALEZ TOLEDO

DOCTOR VORAAL

There is an astounding and inspiring diversity in the universe, not just of individual species and cultures, but of individual capabilities, skills, talents, and perspectives. Use the tools in this chapter in conjunction with those found in the core rulebook and other supplements to make your character unique.

THIS CHAPTER CONTAINS A HOST OF new character **career events** and **talents** for use when creating or developing main characters and non-player characters, supplementing the options found in ***Chapter 4*** of the core rulebook.

NEW CAREER EVENTS

THE FOLLOWING ADDITIONAL CAREER events relate to science and technology, and are more suited to characters in a **scientific** or **engineering** field.

Unlike the career events listed on pages 128–131 of the core rulebook, each of these options provides a choice of attributes and a choice of departments to increase. Each event still only adds 1 to a single attribute and 1 to a single department.

.:ENCOUNTERED A ROGUE AI

Ancient civilizations, cutting-edge science, and even accidental creation can all result in true artificial intelligence (AI), and encounters with these AIs are often eventful and unpredictable situations. The character encountered one such AI, perhaps discovering it ruling over a primitive society, or attempting to override the ship's computer, or just carrying out its programming in a strange or dangerous manner.

- **ATTRIBUTE:** +1 Control or +1 Reason
- **DEPARTMENT:** +1 Command or +1 Science
- **FOCUS SUGGESTIONS:** Computing, Cybernetics, Holo-Programming

.:RANDOM CAREER EVENT

D20	RANDOM CAREER EVENT
1–2	Encountered a Rogue AI
3–4	Encountered a Spatial Anomaly
5–6	Encountered a Temporal Anomaly
7–8	Experienced an Alternate Dimension
9–10	Fellowship at an Elite Institution
11–12	Studied Archaeotechnology
13–14	Studied a New Power Source
15–16	Technological Catastrophe
17–18	Tested Transporter Improvements
19–20	Worked on a Transwarp Project

.:ENCOUNTERED A SPATIAL ANOMALY

The term 'spatial anomaly' describes any unusual disruption in the normal fabric of space-time, ranging from gravitational irregularities, locations where the laws of physics are altered, or even wormholes across space.

- **ATTRIBUTE:** +1 Daring or +1 Control
- **DEPARTMENT:** +1 Conn or +1 Science
- **FOCUS SUGGESTIONS:** Anomalous Physics, Quantum Mechanics, Subspace Dynamics

.:ENCOUNTERED A TEMPORAL ANOMALY

The character experienced events or phenomena outside the natural passage of time. Perhaps they were trapped in a temporal loop, experiencing the same events over and over until they escaped. Perhaps they crossed paths with a time traveler, or travelled to the past or future. Perhaps they grew up in a different era or a different timeline, and found themselves stranded in our own.

- **ATTRIBUTE:** +1 Daring or +1 Control
- **DEPARTMENT:** +1 Science or +1 Engineering
- **FOCUS SUGGESTIONS:** Archaeotechnology, History, Temporal Mechanics
- **TRAIT:** The character may take a trait to reflect the lasting effect of their experiences, such as **Seen the Future**, **Trans-temporal Awareness**, or **Time-Displaced**.

.:EXPERIENCED AN ALTERNATE DIMENSION

The universe is far more than what can normally be seen or experienced, and there are many layers of reality rarely interacted with, such as fluidic space, the Q Continuum, and innumerable subspace domains, as well as parallel universes such as the Terran Universe. The character has encountered or experienced some phenomena originating in another dimension, or even visited an alternate dimension personally.

- **ATTRIBUTE:** +1 Reason or +1 Fitness
- **DEPARTMENT:** +1 Science or +1 Security
- **FOCUS SUGGESTIONS:** Alternate Histories, Multi-Dimensional Physics, Subspace Dynamics

.:FELLOWSHIP AT AN ELITE INSTITUTION

There are countless prestigious scientific and academic institutions across the Galaxy, such as the Daystrom Institute in Okinawa on Earth, or the Vulcan Science Academy in ShiKahr on Vulcan. The character studied at one such institution for several months or even a few years, carrying out important research and making a name for themselves within the scientific community.

- **ATTRIBUTE:** +1 Presence or +1 Reason
- **DEPARTMENT:** +1 Science or +1 Medicine
- **FOCUS SUGGESTIONS:** Archaeological Medicine, Cybernetics, Theoretical Physics
- **TRAIT:** The character may select a trait representing the prestige and accomplishment that comes with such a time of study, such as **Daystrom Fellow** or Studied at the **Vulcan Science Academy**. Name the trait according to the institution.

.:STUDIED ARCHAEOTECHNOLOGY

Archaeotechnology is the study of technology used in the past, both in the histories of modern cultures and in civilizations that no longer exist. The character has spent time—either professionally, or for their own enjoyment—studying historical technologies, whether the crude pre-warp devices of their own culture or the forgotten science of advanced civilizations long past.

- **ATTRIBUTE:** +1 Control or +1 Reason
- **DEPARTMENT:** +1 Engineering or +1 Medicine
- **FOCUS SUGGESTIONS:** Archaeotechnology, Electronics, History

.:STUDIED A NEW POWER SOURCE

While much of the Galaxy relies on fusion and dilithium-moderated matter/antimatter reactors for power, there are always theories and experiments pursuing the possibility of new sources of energy, or refinements of existing ones. The character has spent time and effort researching these possibilities.

- **ATTRIBUTE:** +1 Control or +1 Reason
- **DEPARTMENT:** +1 Engineering or +1 Science
- **FOCUS SUGGESTIONS:** EPS Power Systems, Matter/Antimatter Reactors, Plasma Physics

.: TECHNOLOGICAL CATASTROPHE

Technological advancement is often messy, with false starts, unforeseen consequences, and sometimes even costly disasters. The character was present during an especially serious failure; perhaps they helped contain the consequences, or saved others from it, or perhaps they feel it was their mistake that led to the catastrophe.

- **ATTRIBUTE:** +1 Daring or +1 Fitness
- **DEPARTMENT:** +1 Command or +1 Medicine
- **FOCUS SUGGESTIONS:** Damage Control Procedures, First Aid, Nuclear Physics

.: TESTED TRANSPORTER IMPROVEMENTS

For all that it seems miraculous, there are serious limitations to transporter technology, and each generation of new engineers pushes those limits and finds ways to expand the capabilities of the technology. The character was involved in such developments, having worked in situations that pushed the limits of transporters or employed them in an unconventional manner.

- **ATTRIBUTE:** +1 Control or +1 Reason
- **DEPARTMENT:** +1 Engineering or +1 Medicine
- **FOCUS SUGGESTIONS:** Molecular Synthesis, Sensor Operations, Transporters & Replicators

.: WORKED ON A TRANSWARP PROJECT

'Transwarp' is a catch-all term for a variety of faster-than-warp propulsion technologies and projects. The character was involved in one of these projects, whether studying new propulsion theories or developing new technologies for testing.

- **ATTRIBUTE:** +1 Reason or +1 Insight
- **DEPARTMENT:** +1 Conn or +1 Engineering
- **FOCUS SUGGESTIONS:** Astromycology, Quantum Mechanics, Subspace Theory

NEW TALENTS

THE FOLLOWING NEW CHARACTER TALENTS SUPPLEMENT THOSE FOUND ON PAGES 148–165 OF THE CORE rulebook and are usable by any character, unless specifically stated otherwise.

AUGMENT AND CYBERNETICS TALENTS

.: ANALYTICAL RECALL

REQUIREMENT: Augment or **Cyborg** trait, or gamemaster's discretion

You record everything you perceive, and can recall it with such clarity you can analyze every detail later. You may spend 1 Momentum (and a major action if in combat) to attempt a **Reason + Science** task with a Difficulty of 0 to replay old memories; Momentum spent may be used to *Obtain Information* as you analyze details you might have missed before.

.: SYNTHETIC PHYSIOLOGY

REQUIREMENT: Cyborg trait

Much of your body has been reconstructed with cybernetics. You have Protection 1, which increases by 1 against Stun attacks. Further, when you attempt a task using **Fitness**, you may suffer 1 Stress to reroll a single d20. Tasks to heal your Injuries use **Engineering** instead of **Medicine**.

COMMAND TALENTS

.:COMMAND & CONTROL

REQUIREMENTS: Command 4+, Engineering 2+

You're well-versed in the ways technology can keep you in contact with your officers and allow you to aid them from afar. During combat, when you create a trait for an ally that represents a plan, strategy, or some valuable information, you may spend 1 Momentum to duplicate that trait and give a copy to a different ally. You must be able to communicate with both allies receiving these traits. If you use this talent while aboard ship, you may be assisted by the ship's **Communications + Command**.

.:PROJECT MANAGER

REQUIREMENTS: Command 3+, Engineering 3+

You are used to overseeing engineering teams in technical projects. When you begin a technical project (typically a challenge or extended task), you may nominate a number of other characters up to your **Command** rating to be part of your team. While they are working on that project, they ignore the normal Momentum or Threat cost for assisting, and increase their Impact by 1 when working on an extended task.

CONN TALENTS

.:FIX 'EM AND FLY 'EM

REQUIREMENTS: Conn 3+, Engineering 3+

You may reroll one d20 on any **Engineering** task to perform repairs or any ship or small craft you have piloted. You may reroll one d20 on any **Conn** task to pilot any ship or small craft you have repaired.

.:HOT ROD SHUTTLE

REQUIREMENTS: Conn 4+, Engineering 4+

You have customized one of the ship's small craft as a personal project. You have a number of points equal to your **Conn** score, which you may spend to improve the small craft: each point spent adds 1 to one of its systems or departments. Additionally, select one starship talent of your choice for use on the small craft.

ENGINEERING TALENTS

.:CUSTOM TOOLS

REQUIREMENT: Engineering 4+

You've supplemented your normal toolkits with custom devices of your own design. You gain the **Custom Tools** equipment trait, which is added to your standard issue equipment. This stacks with the effects of your standard engineer's toolkit, and adds 1 to your Impact on extended tasks related to technology. You cannot transfer this trait to other characters—they don't know how to use your tools—and if this trait is lost, you may regain it for free at the start of any scene where you're near a replicator.

.:DEMOLITIONIST

REQUIREMENTS: Engineering 4+, Security 3+

When you attempt an **Engineering** task to create, set, or defuse an explosive device, you may reroll one d20, and you can ignore the first complication on an **Engineering** task involving explosives in each scene. In addition, whenever you make an attack with a weapon with the **Grenade** weapon quality, it gains the **Accurate** quality.

.:WROTE THE BOOK

REQUIREMENTS: Engineering 4+, Veteran (at lifepath) or gamemaster's permission

You know starships so well that you might as well have written the technical manuals yourself. In fact, you probably did write some of them. When you spend Determination on an **Engineering** task, if the task succeeds, double any Momentum you generate.

In addition, during Step 5 of lifepath character creation (page 128 of the core rulebook), if you select the **Veteran** option, you may select this talent instead of the Veteran talent.

SECURITY TALENTS

.: CALIBRATED MUNITIONS

REQUIREMENTS: Security 4+, Engineering 3+

You've spent many duty hours carefully tuning and refining the ship's weapon systems. When you use the *Calibrate Weapons* minor action (page 305 of the core rulebook), the weapon's damage on your next attack increases by 2 instead of 1. In addition, when you fire a weapon with the **Calibration** quality, increase its damage by 1.

.: WELL-MAINTAINED ARSENAL

REQUIREMENTS: Security 3+, Engineering 2+

One of your duties is to maintain the weapons used by the ship's personnel, and you take that duty very seriously. Each scene, any character using a weapon from the ship's weapons lockers may ignore the first complication rolled when making an attack or attempting another task using that weapon. Further, when you attempt a task to create a trait that represents modifying, calibrating, or modulating a weapon, reduce the Difficulty by 1.

This covers any standard issue weapons, or any obtained by paying the Opportunity Cost aboard ship, excluding those gained from other talents.

.: TACTICAL COUNTERMEASURES

REQUIREMENTS: Security 3+, Engineering 3+

You have studied the weapon systems commonly used across the Galaxy, and you know the best ways to counter them. When you take the *Modulate Shields* major action (page 305 of the core rulebook) during starship combat, you increase the ship's Resistance by an amount equal to your Security rating.

During personal combat, if you create a trait that represents creating or modifying a force field, energy field, or dampening field, then all allies protected by that field gain +1 Protection against a single type of energy weapons (phasers, disruptors, plasma weapons, etc.).

SCIENCE TALENTS

.: ON THE SHOULDERS OF GIANTS

REQUIREMENT: Science 3+

Science is a collaborative process, built upon the foundations laid by others. Whenever you attempt a **Science** task and you can benefit from a trait created by another character, you may reroll one d20. If the trait is a piece of specialized equipment or an applicable scientific theory, then you also generate 1 bonus Momentum if the task succeeds. Bonus Momentum cannot be saved.

.: THE POWER OF MATH

REQUIREMENT: Science 3+

You can perform complex math equations quickly in your head, and even your rough estimates are startlingly precise. Whenever you attempt a task which requires precise calculations, you do not suffer any Difficulty increase for lacking tools, and the first d20 you purchase is free.

▷ RAPID CALCULATION

Characters like Spock or Data can perform complex calculations in their head quickly and accurately. While the talent **The Power of Math** allows a character to fully capitalize on this knack, it's reasonable to assume many characters can do this without the talent.

Any character with **The Power of Math**, and any character with Reason 11+, can perform rapid calculations. If it becomes relevant in play, anything the player can calculate using a calculator, their character is assumed to be able to figure out in their head.

.:COMBAT STIMULANTS

REQUIREMENT: Medicine 3+

You carry, and can formulate, a potent cocktail of stimulants, adrenaline, and pain inhibitors which can increase the recipient's aggression, physical ability, and resistance to pain for a short time. You can administer a dose of stimulants to yourself or another character in Reach as a minor action. When administered, the recipient immediately recovers Stress equal to twice your Medicine score, and gains the **Combat Stimulants** trait for the rest of the current scene. While they have this trait, they gain +1 Protection, and may reroll one d20 on any task using **Daring**. However, at the end of the scene, the character suffers enough Stress to become **Fatigued**.

.:TRANSFORMATIVE TREATMENTS

REQUIREMENT: Medicine 3+

You are especially talented when it comes to disguising a person as a member of another species, whether using targeted epigenetic treatments, plastic surgery, or other methods. When you succeed at a **Medicine** task to disguise a character as a member of a different species (creating a trait), you may spend 1 Momentum to increase the potency of that trait by 1.

▷ COMBAT STIMULANTS MAY BE HAZARDOUS TO YOUR HEALTH

Combat stimulants are not condoned for use by Starfleet personnel, and they will not be issued to personnel as a required part of any mission.

However, in some cases—such as during the Federation-Klingon War in 2256–2257—they were employed by Starfleet special forces and a handful of other personnel with the specialized knowledge to create these cocktails themselves, such as Doctor Joseph M'Benga, who later served as Chief Medical Officer on the *U.S.S. Enterprise*.

Other cultures have different attitudes to them. For example, Klingon combat medics often administer powerful stimulants to help injured warriors get back into the fight to seek glory, death, or both.

Long-term use of combat stimulants is potentially dangerous. If a character uses them multiple times in a single session, or consistently across several consecutive sessions, the gamemaster is encouraged to apply complications to the character by spending **Threat**.

WAYNE MILLER

.:CHAPTER 1.2

STARSHIP OPTIONS

"DETACHED NACELLES? WHERE DO THEY EVEN PUT THE WARP CORE?"

- LIEUTENANT KEYLA DETMER

RODRIGO GONZALEZ TOLEDO

LT. COMMANDER BURK VEN JAXA

It's in an engineer's nature to be a tinkerer, to continually analyze, improve, or adapt a design to seek greater efficiencies to craft a more elegant solution. My colleagues working at the various starship design bureaus across the Federation and other spacefaring cultures are always adapting existing starship components or creating new ones. Use the new options here to add more variety and utility to your starship.

THIS CHAPTER CONTAINS A HOST OF new starship **service records**, **talents**, and other options for use when creating or improving a starship, supplementing the options found in ***Chapter 5*** of the core rulebook.

NEW SERVICE RECORDS

THE FOLLOWING SERVICE RECORD options supplement those found on page 216 of the core rulebook. Remember that a starship may have only one service record.

.: ANOMALY MAGNET

There are many strange things out in the depths of space, but some ships seem to encounter these bizarre phenomena more often than others. This ship has encountered more than its fair share of spatial anomalies, temporal paradoxes, interdimensional travel, and aliens claiming to be gods.

ENCOUNTER THE STRANGE: Each adventure, the gamemaster begins with +2 Threat. In addition, the ship always has an additional Directive for each mission: **Understand the Inexplicable**.

.: BROUGHT OUT OF MOTHBALLS

The ship is old, and had been partly or fully decommissioned previously, sitting dormant for long stretches of time as part of the reserve fleet. These ships can be brought back into service quickly during times of emergency.

This service record is intended to be used with a ship that is several decades old.

THE LAST GENERATION: Select one of the ship's systems. When you attempt a task assisted by that system, if the Difficulty is 2 or lower, you may reroll the ship's assist die; If the Difficulty is 3 or higher, increase the task's complication range by 1.

.: LONG-TERM MISSION

The ship has carried out one or more extended missions, spending years out on the frontier, with minimal support from command and minimal oversight. The crew needs to be resourceful and disciplined to thrive.

FAR FROM HOME: The ship's Crew Support and Small Craft Capacity are each reduced by 1. New supporting characters created may increase one of their departments by 1, and all the ship's small craft increase one system by 1 (chosen when the small craft is prepared for launch).

.:MAJOR REFIT

The ship recently underwent extensive refits, essentially rebuilding the ship from the spaceframe up. It may as well be a brand-new ship.

UPGRADED SYSTEMS: When the ship is created, you may select one ship talent granted by the ship's spaceframe and replace it with a different talent. In addition, select one system: that system may be increased up to three times by refits rather than only twice.

.:STATE OF THE ART

The ship represents a combination of the best technologies available to its creators at the time. Rather than being a prototype, this is no testbed for experimental technology, but rather a step beyond that: advanced technology that has been tested and refined.

This service record is intended to be used with a recently-launched ship of a new class.

PEAK PERFORMANCE: Select one of the ship's systems. Whenever a task assisted by this system succeeds, the ship scores 1 bonus Momentum. Bonus Momentum cannot be saved.

NEW STARSHIP TALENTS

THE FOLLOWING NEW STARSHIP TALENTS SUPPLEment those found on pages 218–225 of the core rulebook and may be used by any spacefaring civilization, unless otherwise noted.

.:ADDITIONAL PROPULSION SYSTEM

The ship has been fitted with an additional propulsion system alongside its impulse and warp engines. Select one of the propulsion systems described in the section beginning on page 19. The ship is equipped with that system.

.:CLOAKED MINES

REQUIREMENTS: Security 4+, equipped with Mines

The ship's mines are equipped with cloaking technology, making them near-impossible to detect. Mines deployed by the ship have the Hidden 2 quality.

.:CLUSTER TORPEDOES

The ship uses a modified torpedo system, where each casing splits into several smaller projectiles with separate payloads. When the ship fires a torpedo salvo, the attack gains the Versatile 2 quality.

.:EXTENDED SENSOR RANGE

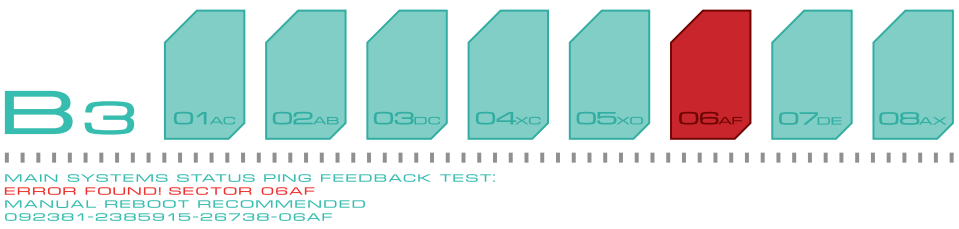
The ship's sensors have been refined to be more effective at longer ranges.

When you attempt a task assisted by the ship's Sensors, if there is any increase in Difficulty due to range, then reduce that Difficulty increase by 2. This effect is lost if the Sensors suffer one or more breaches.

.:INDEPENDENT WEAPON POWER

The ship's directed energy weapons are powered from an independent reactor rather than tied to the ship's main engines.

Increase the Damage rating of the ship's energy weapons by 1. Further, when you fire one of the ship's energy weapons, ignore one breach currently affecting the ship's Weapons system. However, Reserve Power cannot be redirected to the ship's Weapons.



.: INDUSTRIAL REPLICATORS

The ship is equipped with high-power, high-capacity replicators which can produce large-scale objects, components for prefabricated buildings, colonial infrastructure, or even vehicles. Tied into the ship's cargo transporters, they can deposit their output directly onto a planet's surface from orbit: a valuable ability during crisis relief missions.

The ship has the trait **Industrial Replicators**, and the ship's Small Craft Capacity is increased by 2 (if the ship *also* has Extensive Shuttlebays, apply this bonus afterwards). In addition, characters on the ship may replicate large objects, structures, and vehicles during a mission; these have **opportunity cost 3**.

.: MINELAYER

The ship has been refitted to deploy mines (see page 17) in addition to its existing armaments. Choose a single type of mine for the ship to carry. The **Expanded Munitions** talent allows the ship to select additional mine types.

.: MODULAR CARGO BAYS

The ship's cargo bays are large, but they're also fitted with additional equipment, movable partitions, force field generators, and other stowable furnishings that make it easier to refit the cargo bay for other purposes (see page 188 of the core rulebook).

When you convert a cargo bay to serve another purpose, it only costs 1 Momentum (Immediate) rather than 2, and the new trait gains +1 Potency.

.: SELF-REPLICATING MINES

REQUIREMENTS: 2371 or later, Security 4+, equipped with Mines

The ship carries mines which are capable of self-replicating themselves over time, allowing them to replenish detonated mines. This reduces the mines' Damage rating by 1, and cannot be done with Cumbersome mines, but the Difficulty of the task made to avoid the mines is not reduced when mines are detonated.

.: TRACEABLE PAYLOAD SYSTEM

REQUIREMENT: 25th century or later

The ship's armaments have been modified to leave a distinctive radioisotope signature on anything they strike. This signature is difficult to detect unless it has been specifically looked for, but the firing ship can detect it up to five light-years away.

Whenever this ship succeeds at an attack, you may spend 1 Momentum to apply the trait **Radioisotope Trace** to the target. This trait remains for approximately a day. If a target with that trait is within five light-years, you may attempt a **Reason + Science** task with a Difficulty of 2, assisted by the ship's **Sensors + Security** to detect the target's approximate location (the closer you are, the more precise a location you can get). If the target is outside of this range, the task immediately fails.

NEW WEAPON TYPE: MINES

IN ADDITION TO ENERGY AND TORPEDO WEAPONS, detailed on pages 226–231 of the core rulebook, there is a third weapon type present in the *Star Trek* universe: **mines**.

Considered a primitive weapon by most civilized species, many species used mines as automated defenses at some point in their history. With payloads like those of torpedoes, mines can damage any ship foolish enough to stumble into their zone. Many spacefaring civilizations currently (or have in the past) make use of a variety of mines, and so mines may often be encountered during a mission.

The Federation rarely uses mines because they generally do not fit within the Federation's standard rules of engagement. The desperation of the Dominion War forced the need to mine the Bajoran wormhole entrance. For the Federation and Starfleet, the use of mines, especially cloaked mines, is a last-resort measure used under extreme circumstances.

.: WEAPON QUALITIES

Some of the weapon qualities described on pages 226–227 of the core rulebook require minor amendments to adjust for the addition of mines to the game, as follows:

CUMBERSOME: If the weapon is a mine, the ship deploys only a single mine, the Difficulty to avoid it is reduced by 1, and the minefield is removed entirely after the mine detonates.

DEPLETING: On a mine, the ship hit cannot be **shaken**, and damage is instead increased by 1 for each success less than the Difficulty the enemy ship scored.

HIDDEN X: If mines have this quality, an active scan (such as a Reveal major action) is needed to detect a minefield. Further, the Difficulty to avoid the mines increases by X.

INTENSE: On a mine, the damage is instead increased by 1 for each success less than the Difficulty the enemy ship scored.

.: MINE DETAILS

As they lack a need for propulsion systems, mines tend to carry larger payloads than torpedoes and are meant to fill a zone with a hazardous deterrent. Often carrying the same types of energy payloads as torpedoes (see pages 229–230 of the core rulebook), mines are placed in an area and set to detonate when a ship moves within **Close** range. Mines have a set amount of damage. Releasing mines into an area escalates hostilities, so when the mines are set, add 2 Threat.

Releasing a minefield cannot be completed while in combat and requires a Difficulty 0 **Control + Conn** task assisted by the ship's **Computers + Security**. This task generates no Momentum; instead, the number of successes rolled sets the Difficulty for an opposed task by any ship venturing into the minefield. Minefields typically show up on routine scans.

When a ship moves into Close range of the mines, the character at the helm must attempt a **Control + Conn** task assisted by the ship's **Sensors + Security**. The Difficulty of this task is set by the ship that deployed the mines. If the enemy ship fails this task, a mine explodes, damage is calculated, and qualities are applied; the mine's damage is increased by 1 for every two successes less than the Difficulty the enemy ship scored. The enemy ship must attempt this task at the end of each round that it is in Close range of the zone containing the minefield. Once a mine detonates, the Difficulty to avoid the mines in that zone is reduced by 1, to a minimum of 0, as fewer mines remain to be avoided. At Difficulty 0, the minefield is no longer present.

.: TYPES OF MINES

In general, mines were introduced in the same century as their torpedo counterparts and have the same qualities. Because the payloads are typically larger than those found in torpedoes, the Damage rating of mines is typically less than their torpedo counterparts.

Mines do not add station or ship damage bonuses; they inflict the listed damage only.

.:MINE TYPES

MINE TYPE	DESCRIPTION	DAMAGE RATING	QUALITIES
Blackout	Used to slow down an enemy by interfering with their sensors and causing the ship to collide with multiple mines with little chance of navigating away.	2	Jamming
Blade	Uses mechanical spinning blades to slice into an enemy's hull.	3	Piercing
Chroniton	Advanced weapons, employed by highly advanced cultures who have developed temporal technology. If they pierce shields, can induce a temporal displacement effect in a vessel, hindering its ability to respond to attack.	4	Slowing
Gravimetric	Uses graviton inversion fields to tear at an enemy's hull.	6	Cumbersome, High Yield, Piercing
Neutronic	Douses a target with neutronic radiation, disrupting power systems.	5	Dampening
Nuclear	Primitive nuclear fusion or nuclear fission mines, generates intense heat, radiation, and explosive force.	4	Intense
Photon	Uses a controlled matter/antimatter reaction to create a devastating blast.	4	High Yield
Photonic	The precursor to photon mines, uses a matter/antimatter reaction but is less refined and the reaction less controlled.	3	High Yield
Plasma	Generates a field of destructive plasma around the target, which continues to damage the target over time.	6	Cumbersome, Persistent
Polaron	Powerful mines able to pierce a target's defenses.	4	Piercing
Positron	A simple but powerful mine.	6	Cumbersome, Dampening
Quantum	These destructive weapons add quantum vacuum energy to the energy released from their matter/antimatter reaction, giving them powerful destructive energy.	5	High-Yield, Intense
Tetryonic	Primarily used against hardened targets—those with heavy defenses, strong shields, and armored hulls.	3	Depleting, High Yield
Transphasic	These mines exist in multiple, dimensional phases at once, bypassing defenses that do not exist in every such phase.	5	Devastating, Piercing

TRANSWARP AND OTHER PROPULSION

TRANSWARP IS THE BROAD TERM GIVEN BY THE United Federation of Planets and Starfleet to a variety of propulsion technologies that bypass or exceed the typical limitations of warp drive. An early and public example of this technology in Starfleet history was the infamous failed 'Great Experiment' of the transwarp drive installed on the *U.S.S. Excelsior* in 2285, though even in failure, the lessons learned from that experiment led to major developments in warp theory over the following decades.

The pursuit of transwarp has been of interest to the Federation, and for many other civilizations across the Galaxy for a long time, though it is often regarded with skepticism too: as valuable as the results could be, there are as many crackpot theories as there are legitimate ones. The return of the *U.S.S. Voyager* in 2378 resulted in a sudden surge of additional research in the field, as *Voyager* had discovered numerous potential transwarp technologies during her voyage home.

Nevertheless, even as some of these technologies become viable over the decades and centuries that follow, nothing ever truly replaces conventional warp as the baseline for faster-than-light flight, even during the difficult era of The Burn in the 31st and 32nd centuries. These faster propulsion methods all have other limitations or challenges which mean they are often supplemental to a ship's warp drive, rather than a replacement.

Following are some of the better-known and successful transwarp propulsion systems.

▷ NPC STARSHIPS AND WARP

Strictly speaking, NPC ships do not have Reserve Power, yet this shouldn't mean that NPC ships cannot go to warp (or use the transwarp options here). Rather, an NPC ship should always be considered to have Reserve Power if it needs to take the *Warp* action. One or more breaches inflicted on an NPC ship's Engines system will prevent them going to warp, however.

.:DISPLACEMENT-ACTIVATED SPORE HUB DRIVE

Commonly referred to as the spore drive, the Displacement-Activated Spore Hub Drive was a highly-classified advanced technology developed by the United Federation of Planets in the 23rd century. Two such drives were initially produced and installed aboard the *U.S.S. Discovery* and the *U.S.S. Glenn*, with development of the technology led by astromycologists Paul Stamets and Justin Straal. After the disappearance of the *Discovery* in 2258, all files on the technology were sealed. A third such drive was developed in the late 32nd century.

The technology was potent, but difficult to use. The ship shifted into an interstellar mycelial network, and travelled along the pathways of the network to reach any point in space (or, potentially, other universes). However, the complexity of navigating the network was beyond any computer system known. *Discovery*'s crew found the drive required a living navigator. This was initially a macroscopic tardigrade which fed on and existed symbiotically with the mycelial network, but it was shown the tardigrade suffered during these flights. A humanoid navigator genetically engineered to replace the tardigrade was necessary; Starfleet laws against genetic modification contributed to the abandonment of this technology.

A vessel equipped with a **spore drive** can activate the drive when the ship goes to warp (or, in combat, takes the *Warp* major action). This replaces the normal effect of the *Warp* action. Activating the spore drive requires **Reserve Power**, and you must take a *Prepare* minor action to take the *Warp* action as normal. The spore drive's navigator must attempt a **Control + Science** task, assisted by the ship's **Engines + Science**. The Difficulty is determined by the distance to be jumped, as shown on the **Spore Drive Distance and Difficulty** table.

If the task attempt succeeds, the ship immediately disappears and reappears at the desired destination. If the task attempt fails, the jump does not occur and the ship does not move. Each jump attempted also inflicts a Stun Injury with a severity of 2 on the navigator: the navigator may *Avoid Injury* as normal.

.:SPORE DRIVE DISTANCE AND DIFFICULTY

DISTANCE JUMPED	DIFFICULTY
Less than 1 light-year	0
Less than 10 light-years	1
Less than 100 light-years	2
Less than 1,000 light-years	3
Less than 10,000 light-years	4
Less than 100,000 light-years	5
More than 100,000 light-years	6

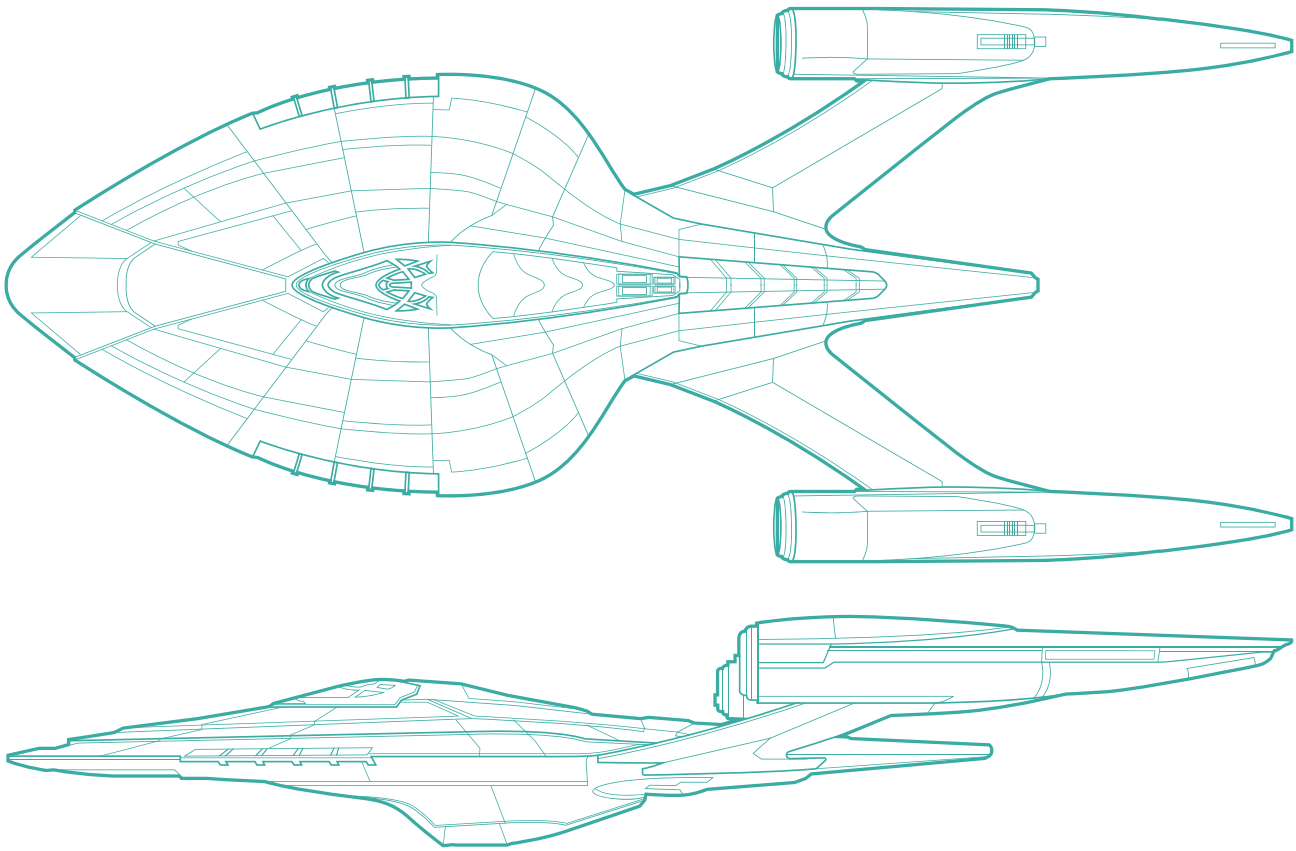
.:PROTOSTAR DRIVE

The gravimetric protostar containment drive is an experimental form of propulsion first trialed aboard the *U.S.S. Protostar* in the late 24th century. Using the contained energies from the core of an artificial protostar, the ship is accelerated to velocities far faster than those possible using only warp engines. With a protostar drive, a ship can travel thousands of light-years in a matter of minutes.

However, this technology is delicate. Containing the power source requires most of the output of two compact matter/antimatter reactors, and even with this power source, the drive can take a long time to charge between uses.

A vessel equipped with a **protostar drive** may activate the drive when the ship goes to warp (or, in combat, takes the *Warp* major action). This replaces the normal effect of the *Warp* action. Activating the protostar drive requires **Reserve Power** (and the Improved Warp Drive talent does not help here), and you must take a *Prepare* minor action to take the *Warp* action as normal. Attempt a **Control + Engineering** task with a Difficulty of 2, assisted by the ship's **Engines + Engineering**. If you succeed, the ship enters proto-warp at the end of the current round. It travels at those speeds for several minutes, and then the drive shuts down automatically.

A vessel equipped with a protostar drive operates slightly differently than other ships in two other ways as well. First, whenever the ship suffers a breach to its Engines system, increase the potency of that breach by 1. Second, due to how much power is taken up by the protostar drive, the Difficulty of the *Regain Power* action is increased by 1, and any talent that allows you to spend Momentum or add Threat to gain Reserve Power increases in cost by 1.



.: QUANTUM SLIPSTREAM DRIVE

First encountered by the *U.S.S. Voyager*, quantum slipstream drives allowed a ship to generate a quantum field, entering a subspace domain which allowed far faster travel than maximum warp velocities, potentially hundreds of light-years per hour. The technology, as implemented on *Voyager*, utilized the peculiar properties of benamite crystals to regulate the quantum field, and the first limitation in the use of quantum slipstream is the difficulty of obtaining or synthesizing these crystals.

The second limitation is the delicate nature of technology. The quantum field generated by the ship needs constant fine adjustments to keep the slipstream stable; failure results in the slipstream collapsing, ejecting the ship back into realspace with violent or even catastrophic results. Nevertheless, the technology was deemed promising, and Starfleet put considerable effort into developing the technology, with the *U.S.S. Dauntless* (NCC-80816) in active service by 2384.

A vessel equipped with a **quantum slipstream drive** may activate the drive when the ship goes to warp (or, in combat, takes the *Warp* major action). This replaces the normal effect of the *Warp* action. Activating the quantum slipstream drive requires **Reserve Power**, and you must take a *Prepare* minor action to take the *Warp* action as normal. Attempt a **Control + Science** task with a Difficulty of 1, assisted by the ship's **Engines + Science**. If you succeed, you open a slipstream threshold within Close range and enter it. Other ships within Close range may attempt to enter the threshold as well, and travel together until they leave the slipstream.

Travelling within the quantum slipstream is an extended task, with a progress track based on the planned travel distance. The progress track has 1 space for every 50 light-years to be travelled (which will take about 10 minutes). The extended task has a base Difficulty of 2 and a Resistance of 1; poor quality benamite crystals introduce a greater phase variance, increasing the Resistance. **Control + Engineering** or **Reason + Science** tasks can be used to overcome this extended task, assisted by the ship's **Sensors + Science**.

Completing the extended task causes you to emerge safely, having travelled the desired distance. The first failed task increases the extended task's Difficulty by 1. The second failed task inflicts a hit with damage 6 to a random system, ignoring Resistance, and then increases the Difficulty again by 1. The third failed task causes the extended task to fail and the slipstream to collapse, violently ejecting the ship back into realspace: the ship suffers 3 hits to random systems, each at damage 10, as if from a weapon with the **High Yield** and **Piercing** qualities.

.: TRANSWARP

Borg vessels employ an expansive network of transwarp conduits spread across the Galaxy, maintained by six transwarp hubs and regulated by the Borg Queen herself. Each hub maintains thousands of conduits, which remain stable and efficient due to advanced interspatial manifolds bracing each conduit. These conduits can be accessed by vessels in two ways: by generating a specific **tachyon pulse**, or by using a **transwarp coil** installed into the vessel's propulsion systems.

USING A TACHYON PULSE

A vessel may use a carefully modulated tachyon pulse to open an existing transwarp conduit; however, *finding* a closed transwarp conduit is extremely difficult if you don't already know where to look. Once you've found a conduit, generating a tachyon pulse to enter transwarp space (without a transwarp coil) requires the use of **Reserve Power** and a successful **Control + Conn** task with a Difficulty of 4, assisted by the ship's **Sensors + Conn**. If you succeed, your ship slides into transwarp space and proceeds along its designated course. Failure results in the expenditure of Reserve Power and a breach to the ship's Engines.

USING A TRANSWARP COIL

Transwarp coils were integral to Borg Cubes, but there are instances where other vessels have secured a transwarp coil and used it to access the Borg transwarp network. These coils are delicate and require careful maintenance, and tend to have a very short operational lifespan when used by non-Borg vessels. Since the fall of the Borg Collective, transwarp coils salvaged from derelict Borg Cubes have been found in black markets across the Galaxy, though the destruction of the Collective has caused the network to fall into disrepair.

A vessel equipped with a **transwarp coil** may activate the coil when the ship goes to warp (or, in combat, takes the *Warp* major action). This replaces the normal effect of the *Warp* action. Activating a transwarp coil requires **Reserve Power**, and you must take a *Prepare* minor action to take the *Warp* action as normal. Attempt a **Control + Conn** task with a Difficulty of 2, assisted by the ship's **Sensors + Conn**. If you succeed, you open a conduit to transwarp space, either by accessing an

existing transwarp conduit, or by creating a new conduit using your transwarp coil (though creating a new conduit increases the Difficulty by 1). If the task fails, the ship simply fails to open the conduit, or to create one, though Reserve Power is expended either way. Transwarp coils are extremely fragile, and only the Borg have demonstrated the ability to maintain or produce them: once used, a transwarp coil burns out and is rendered useless.

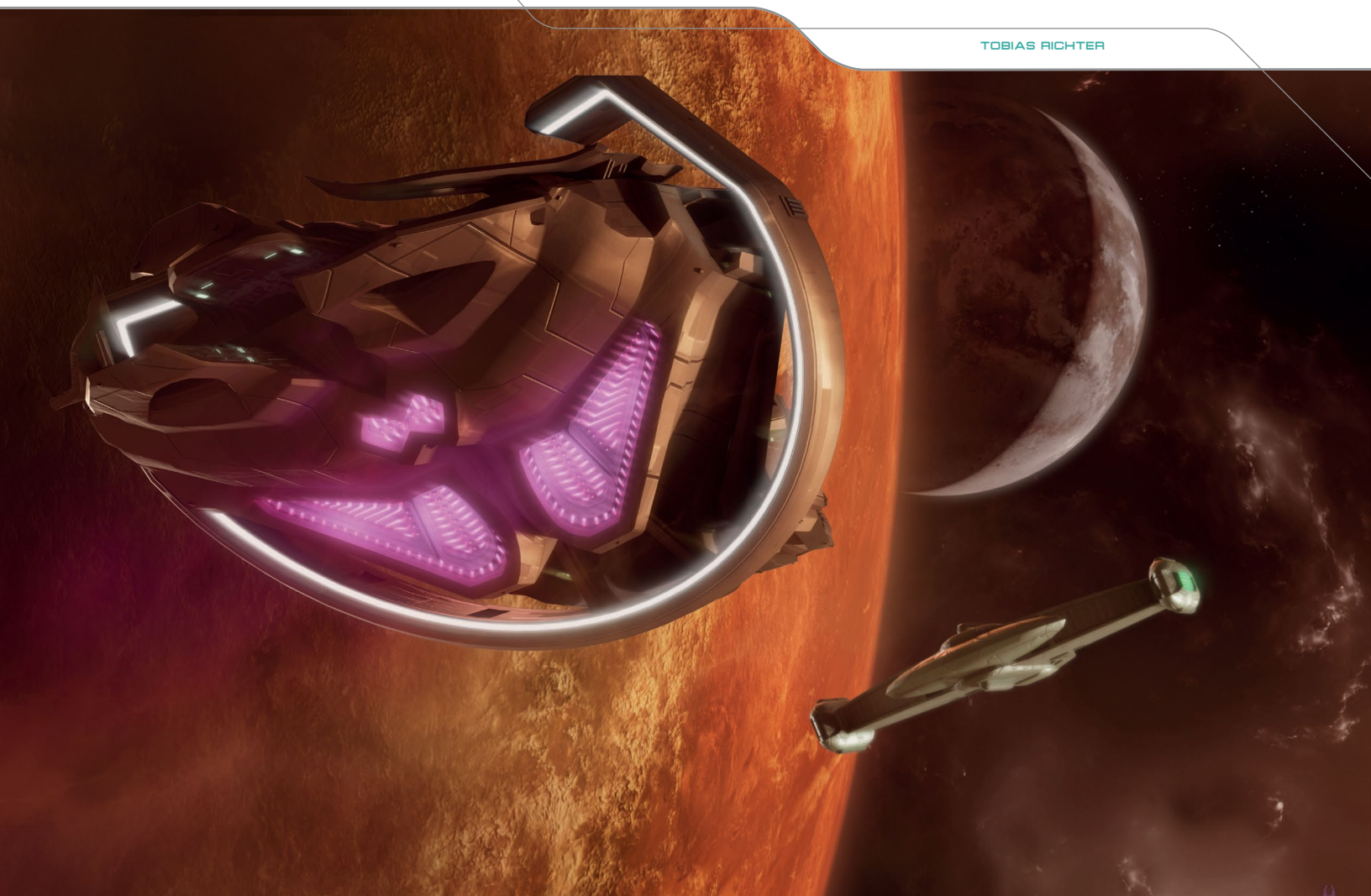
The transwarp conduit you created or opened remains open briefly: another vessel within Close range of the conduit may attempt to enter the conduit as well, which requires a **Daring + Conn** task with a Difficulty of 4.

Travel in a pre-existing transwarp corridor is *significantly* faster than conventional warp. A vessel in the corridor travels at tens of thousands of times the speed of light, and can cross distances in hours that would take weeks at warp. However, once in the conduit, a ship can only change course by leaving the conduit. Vessels need to depart from the conduit as close to their intended destination as possible, and then travel by warp the rest of the way.

Travel within a transwarp corridor is also dangerous. Within such a deep layer of subspace, extreme gravimetric and temporal stresses are exerted upon a ship. Borg starships are constructed to withstand these conditions, and are unaffected. Non-Borg vessels may find it riskier.

For each hour a non-Borg vessel spends within a transwarp conduit, its crew must attempt a **Daring** or **Control + Conn** task, assisted by the ship's **Structure + Conn** with a Difficulty of 2. On a success, the ship remains safe and continues its travel. On a failure, the ship suffers a hit with damage 8 to a random system; this increases by 2 for each complication suffered on the attempt. Further, a failed attempt results in the ship *either* being ejected from the transwarp conduit *or* the Difficulty of all subsequent task attempts made in the transwarp conduit is increased by 1 (this is cumulative).

Precautions against the effects of transwarp can be made—such as reinforced structural integrity fields, chroniton fields, temporal shielding, and similar—counting as creating a trait. Each such trait can be used to add 2 to the ship's Resistance against damage caused by transwarp.



TOBIAS RICHTER

.:CHAPTER 1.3

ADVANCED TECHNOLOGY

"IF YOU'RE TELLING ME THAT THIS SHIP CAN SKIP ACROSS THE UNIVERSE ON A HIGHWAY MADE OF MUSHROOMS, I KIND OF HAVE TO GO ON FAITH."

- CAPTAIN CHRISTOPHER PIKE

MOST OF THE WELL-KNOWN CULtures in the Alpha and Beta Quadrants have traveled the stars for centuries, and have a long history of both conflict and cooperation. While many staples of modern technology—warp drive, transporters, and directed energy weapons—have existed for generations, the sophistication of those technologies has increased over time, as new generations developed and advanced those technologies.

During a mission, characters usually have access to the technologies of their era: their phasers, tricorders, communicators, and ship or station all use contemporary technology. However, some situations—including ever-problematic time travel—can bring characters into contact with technology decades or even centuries more advanced, or less advanced, than the devices they are accustomed to.

.:MORE ADVANCED

Technology from the future is typically far more sophisticated and capable than the devices pre-dating it. Similarly, some advanced alien cultures may have technology that appears miraculous even to the most sophisticated devices the Federation has ever created. This might take a few different forms:

UNPRECEDENTED TECHNOLOGY: The device or technology has no equivalent, and achieves something that familiar technology cannot. An example of this would be the mobile holo-emitter used by Voyager's Doctor, derived from 29th century technology. This can be achieved with an **equipment trait**, as with most devices—what differs is what the trait represents and enables, which is something beyond the reach of the technologies the characters usually interact with. This technology may not be easy to reproduce, or it may be difficult or even impossible to repair if damaged.

LATER GENERATION TECHNOLOGY: The device or technology is of a familiar type, but several decades, or even centuries, ahead of existing examples. This can easily be handled by making the item's equipment trait **potent**: it does the same thing as contemporary versions, but better, faster, and more effectively, as well as having features and capabilities that may only be theoretical for a contemporary version. An example of this would be the Tricom badges of the 32nd century's Starfleet, which combine the functions of a communicator, tricorder, holographic projector, PADD, and portable transporter. This additional advanced functionality may make the device harder, or even impossible to re-create, or it may mean it cannot be repaired if it malfunctions or suffers damage.

UNFAMILIAR DESIGNS: A possible consequence of handling advanced technology is that it is unfamiliar—it may have components or design elements partly or entirely unrecognizable to those trying to use or examine the

RODRIGO GONZALEZ TOLEDO

LT. COMMANDER BURK VEN JAXA

As any experienced engineer will tell you, the technology information in Chapter 6 of the core rulebook may not be satisfactory for every situation. Maybe the technology involved is especially complex or unusual because it varies from the norm in some notable way, or because it is specialized or especially suited to a certain activity.

device. This could serve as a complication, increasing the Difficulty of, or making impossible, certain tasks involving the device, but that may run counter to the benefits of the technology. Instead, consider increasing the complication range of tasks involving the device: making it more likely something will go wrong. This is sometimes the case with sophisticated technologies made by long-dead civilizations, such as the Iconians, or cultures so advanced that their technology seems magical.

.:LESS ADVANCED

Technology from the past, or from cultures whose technology has not yet reached the level of the major powers of the Alpha and Beta Quadrants, is not commonly used, simply because it is less effective and less functional than modern devices. However, circumstances may conspire to deprive characters of their customary tools, requiring them to rely on less sophisticated devices.

LAST GENERATION TECHNOLOGY: The device or technology is a century or two out of date, or is otherwise equivalent to technology used earlier in Federation history, but it's still the technology of a culture capable of interstellar travel. It might be less refined, or less accurate, less sophisticated, or have a more limited range of functions than its modern counterparts. This can be represented by the gamemaster applying the device's advantage in a more limited fashion, but it could also be handled by imposing an increase to the complication range of any tasks involving the device—increase the complication range by 1 for each step the Difficulty of the task is above 1 (so a Difficulty 4 task would increase the complication range by 3).

PRE-WARP TECHNOLOGY: The technology of pre-warp cultures—and of Federation worlds before they invented the warp drive—covers a broad range of possibilities, but in this context, it applies to technologies roughly equivalent to those of Earth during the 18th, 19th, 20th, and 21st centuries. The likes of tricorders, post-warp computing, subspace radio, and similar advanced devices don't have any direct counterparts, and creating anything more advanced than the "background" level of technology may require some manner of invention (using the **Innovation** rules on page 25).

PRIMITIVE TECHNOLOGY: Pre-industrial technology is even more limited than that of industrialized pre-warp cultures. Characters may need to work hard to even produce tools equivalent to those of later centuries, turning simple raw materials into basic tools. This may require tasks, or it may require something more involved—challenges, extended tasks, or use of the Innovation rules.

UNUSUAL EQUIPMENT

NOT ALL ITEMS CAN BE OBTAINED QUICKLY OR EASIly. They may require specialized components or rare materials that cannot be replicated, or the designs for them may not be readily available. In some cases, the tools necessary to achieve a specific goal may only be theoretical, requiring someone to invent the technology needed. It may even be that the characters have been isolated from their normal gear, and must spend time and effort fashioning rudimentary tools.

In these situations, obtaining the right equipment for a job is a task, or perhaps even a challenge or extended task. This is especially the case where an objective cannot be completed, or an activity cannot be attempted at all without the use of a specific technology: such an item may only be a trait (or a potent trait), but establishing that trait is a significant hurdle that must be overcome before any progress can be made.

The gamemaster's discretion applies with regards to unusual equipment, in determining how the characters may need to go about acquiring or constructing the equipment they need. This could take many forms—negotiating the use of technology from its creator, or designing or inventing the technology, or figuring out a way to modify existing technology—and doing so could serve as the core objective of scenes or even entire missions.

.:CREATIVITY

Starfleet personnel, Klingon warriors, Fenris Rangers, and the like regularly engage in risky or unusual activities, and they need the tools to support those actions. As a result, the potential variety of tools created during a campaign is huge. Don't be dissuaded by lack of known precedent, or lack of in-depth knowledge about what has or has not been tried before. Suggest things and build from there.

If you need to get from one ship to another in a hurry but the transporter isn't viable and a shuttle would be too noticeable, then maybe an environment suit with a thruster pack will get you there if you're willing to take the risk. Spock tried this to approach V'Ger in *Star Trek: The Motion Picture*, and Michael Burnham did likewise to study the Sarcophagus ship in the first episode of *Star Trek: Discovery*.

Questions to consider include:

- Would I need special equipment to do what I want to do, or would it be helpful but not essential?
- What form would this equipment take?
- How likely is it that some tool or device which does that job already exists aboard the ship?
- How difficult would it be to produce something like that, given access to *Star Trek* levels of technology?
- Would it have the potential to cause other problems or challenges?

Figuring out reasonable answers to those questions should help you—individually, and as part of your group—develop unusual forms of equipment for any adventure.

. : INNOVATION

While the equipment aboard a starship, and that carried by its personnel, are capable of being used in a variety of ways, a skilled engineer knows there's always more to a tool in the right hands. Using technology in an unusual way, or pushing the capabilities of that technology beyond its normal limits, are a common part of an engineer's role. Similarly, devising ingenious solutions to unusual problems is part of an engineer's skill set. These creative solutions can provide options that a crew might normally not have in a difficult situation.

Innovation is about providing options for other tasks and challenges. Innovation allows a character to push the limits of existing technologies, often to create new or greater function for some form of technology, such as using a starship's navigational deflector to project streams of high-energy particles, or increasing the range and effectiveness of a transporter system.

As these uses aren't standard, they can come with some form of cost above and beyond the time and tasks or challenges needed to make the changes. These nonstandard uses of technology could draw disproportionate amounts of power, or put a strain on the system being modified, or require that some other systems be disabled to create the new effect.

ARMIN RANGANI

A need for innovation may stem from a new scientific discovery, and technically minded characters may embark upon an innovation immediately after making a discovery.

This kind of innovation requires a few additional considerations, and has a few steps:

DESIGN: What purpose the innovation will play, what it is intended to do, and the way it fulfills that role.

DEVELOPMENT: The gamemaster defines some conditions for the innovation, and then the characters roll to determine the outcome.

PROTOTYPE: The innovation is completed, though it will have some manner of cost or consequence.

DESIGN

The first step in any innovation is for the characters to determine what they want to do. They should think about what effect they wish the technology to have upon the situation, whether enabling some new option or opportunity, removing an option or opportunity from an opponent, or preventing some escalating peril.

Whatever the characters come up with at this point is the basis for everything that follows.

Once the characters have defined the intended purpose of the innovation, they need to define the way it will achieve that purpose. This doesn't have to be precise or accurate science, and should be some manner of "technobabble"—the most important part is that it makes some sense in story terms, and that the explanation sounds like it makes sense. Accurate science isn't a concern for the players—the characters should all have expertise enough to know the specifics.

At this point, the characters should define what system or existing technology the innovation will build upon. The further the purpose (what the innovation wants to achieve) or scale (how big the effect is) is from the normal function of that technology, the more difficult everything else in this process will become, and some innovations may be deemed impossible if the technology and the outcome are too far apart in terms of function or scale.

DEVELOPMENT

The gamemaster then defines the cost for the innovation. This will come in the form of some narrative requirement, an amount of time, the support of personnel, some limited resource, some physical or geographic need (being in the right place), or anything else the gamemaster feels is appropriate. The type and scope of this cost should partly reflect the difficulty of creating the overall innovation, and how big a conceptual gap is between the basic technology and the intended result. Particularly complex innovations could have multiple costs. However, the costs should be achievable—they should make the problem challenging, not impossible.

LOCATION: The innovation can only be done in a specific place, due to being built upon some immobile facility or reliant on certain spatial or subspace conditions, or some other quirk of location. Gaining access to that location may be tricky, but that's not the only way that location can be a problem—it also means that it cannot be relocated in the face of an enemy attack, or that circumstances in that location pose a time limit all their own due to a shifting or perilous environment.

MATERIALS: Some aspects of the innovation require rare, difficult-to-access, restricted, or otherwise hard-to-acquire material resources. Obtaining these resources could end up being a task or challenge.

PERSONNEL: The innovation requires more than one person to work on it. In the simplest terms, this might mean obtaining an engineering or scientific team to work on the innovation, however long it takes, or using a supporting character. It may even require another player character or an important NPC to be involved, taking up their time and effort towards the completion of the innovation. In more complicated situations, it might need specialist input, needing the input or even presence of a noted expert in a specific field, and this may pose difficulties if they need to be persuaded or have conditions for their help.

TIME: The innovation may be entirely possible, but it'll take a while, and in that time, the situation may grow worse or other problems may arise. The innovation won't be rendered useless by the time, but the delay can cause other issues, and will require an engineer's attention for the whole duration, preventing them getting involved in other activities.

At this point, the characters should attempt to create a schematic for the innovation. This will likely be a task,

or perhaps an extended task if the work is perilous or time-sensitive, and it should use **Engineering**. It should also use the Success at Cost rules—you can't really fail at this stage, but the result may not quite meet expectations. The gamemaster should set the Difficulty as usual, accounting for the costs already paid, and should also determine the number of complications that occur on a failed task.

The gamemaster should keep track of the number of complications which occur as a result, but should not define what they are immediately: they apply in the next stage.

PROTOTYPE

A prototype of the innovation has been created and assembled, and is ready to be used for its intended purpose. It serves as a trait with two advantages for whatever purpose the device was designed to fulfill, and it can be used as soon as the characters need it. However, nothing created in this way is perfect—the character is using technology in ways outside the normal design parameters, often while under pressure and with limited resources. This is a very different experience to designing a system from scratch under laboratory conditions, and nothing ever goes entirely to plan. There are invariably some issues that make the prototype less convenient to use than planned, and this is the point where the gamemaster determines what they are and reveals them to the characters.

The drawback(s) are up to the gamemaster to determine, and the number and severity of these drawbacks should be based on the complexity of the innovation, as well as on the number of complications generated on the task or obstacle during the previous stage. Examples include:

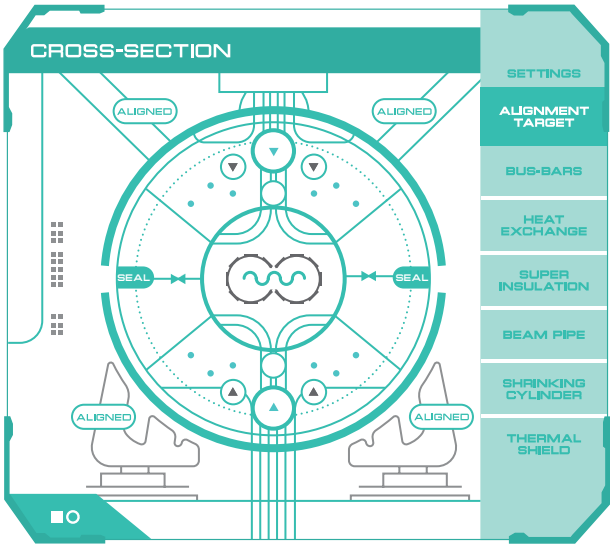
BURN OUT: The prototype puts a lot of strain on the systems being used. The prototype can only be used a limited number of times, and in the process, it causes damage to the systems it was built upon. This may mean that the process of using the prototype may require repairs to restore the underlying technologies after the prototype has been used. The more complications put towards this drawback, the more quickly the system burns out, allowing fewer uses.

DISTINCTIVE ENERGY SIGNATURE: The prototype's output produces an obvious and easy-to-detect signature that can potentially draw unwanted attention or make stealth impossible. The more complications put towards this drawback, the more potent the signature and the easier it is to detect.

EXTREMELY LARGE AND BULKY: The prototype's final form is big, often to a point where moving it into position becomes difficult. This should require a task to get the prototype into position before it can be used. The more complications put towards this drawback, the more difficult the task.

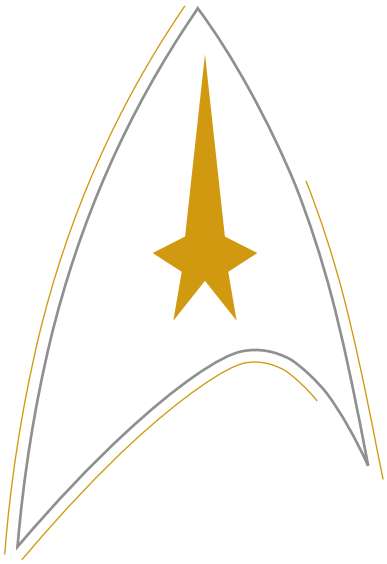
MASSIVE POWER REQUIREMENTS: The prototype needs vast quantities of energy to function, and may need to be hooked up to powerful reactors such as a starship's warp core. This could hinder the function of other devices drawing from the same power source. Using this prototype requires the expenditure of **Reserve Power**. If your ship does not have Reserve Power available, you need to find another means to create enough energy to activate your prototype. The more complications put toward the drawback, the more energy the prototype requires, perhaps even requiring exotic power supplies far beyond a starship's warp core.

MUTUALLY EXCLUSIVE: The prototype so thoroughly alters the normal function of the underlying technology that it will take time and effort to restore the system to its normal working state after use. This may not require a task (or may require a Difficulty 0 task), but it will take time, and prevent characters from making use of the technology's normal function until it has been restored. The more complications put towards this drawback, the more difficult and/or time-consuming it is to restore the system's normal function.



CHAPTER 2

STANDARD EQUIPMENT



2.1 COMMON TECHNOLOGY 30

.:CHAPTER 2.1

COMMON TECHNOLOGY

"HOW MANY TIMES DO I HAVE TO TELL YOU? THE RIGHT TOOL FOR THE RIGHT JOB!"

- CAPTAIN MONTGOMERY SCOTT

RODRIGO GONZALEZ TOLEDO

LT. COMMANDER BURK VAN JAXA

The technology we carry with us into space has been imagined and designed by some of the best minds the Federation can offer, but many of those same individuals rarely, if ever, encounter for themselves the environment in which that technology is intended to operate. We who face that challenge are not better than those bright, intelligent creators. Instead, our job is to use and push their creations to their limits and find ways to improve upon what we've been given, so those who one day follow the path we now chart will do so while being even better prepared than we are.

DESPITE THE MANY DIFFERENCES among spacefaring civilizations, most make use of similar standard technologies. Given the number of merchants and traders working the space lanes moving goods from one planet to another and one polity to another, it's inevitable that the galactic community occupying the Orion Spur would share similar technologies. This chapter provides details on several types of standardized equipment, including holography and holodecks, PADDs, personal communications, replicators, and uniforms.

HOLOGRAPHY

ON EARTH, THE USE OF HOLOGRAMS and holographic technology dates back to the late 20th century. Most of its applications were geared toward entertainment, but even at that point in time there were those who saw the potential to be realized in the areas of architecture and design, healthcare, and—of course—military applications.

Whereas those primitive attempts relied more on the practice of projected imagery to achieve the illusion of three-dimensional objects, figures, and environments, modern holotechnology centers around the use of photons shaped and held in place by force fields in order to achieve the desired constructs. Deployed in this way, holograms can hold shapes and mass which simulate actual physical objects and environments to the smallest degree. Indeed, such conjured items—at least within the spaces where holograms are allowed to reign—*are* real in nearly every sense.

.:FEDERATION STARFLEET

Holotechnology installation aboard Starfleet vessels, aside from occasional experimentation or field testing, did not begin in earnest until the mid-23rd century. *Crossfield*-class starships, designed and deployed primarily as testbeds for emerging technologies, feature the first concentrated use of such equipment. Naturally, such technology is also employed to varying degrees by other interstellar powers and non-aligned worlds.

COMMUNICATIONS (CIRCA 2255)

Pioneered during this period, interaction is achieved by broadcasting one's holographically-generated self to an emitter at the other end of the communication. Thus, the involved parties appear to be standing or sitting in proximity to one another. Early success accelerated the expansion of the technology beyond *Crossfield*-class starships toward installation of the requisite equipment aboard other Starfleet vessels, but heightened energy requirements and vulnerability to attack and exploitation put off many

a starship commander or chief engineer. A return to standard audio-visual communications was instituted fleetwide, though holographic communication remained in continued use in limited capacities. By the 32nd century, a far more advanced version of this technology is in widespread use by the Federation and other interstellar powers.

TACTICAL SIMULATION TRAINING (CIRCA 2255)

A form of holographic and augmented reality projection employed as a weapons training aid. Holographic projectors generate simulated targets to be engaged with phaser rifles and pistols set to stun, providing sufficient force to record hits on the various targets and virtual adversaries. Simulators of this type continued to be used aboard Starfleet vessels until their functions were folded into the library of programs available for use on the next generation of holographic environment generators in the 24th century.

RECREATION ROOM (CIRCA 2270)

An experimental form of programmable holographic environment, this technology was installed and field-tested in limited fashion aboard certain *Constitution*-class starships. Though capable of generating a realistic simulated environment, it offers only a narrow selection of settings from which to choose. The projected scenes remain mostly static, but an elaborate combination of audio, lighting, and even weather effects such as wind and adjustable temperature and humidity levels helps to sell the illusion, which can be shattered merely by walking far enough to touch one of the room's walls. Despite these limitations, the ideas behind the technology deployed in settings of this sort laid the groundwork for future, far more immersive holographic environments.

HOLODECK (CIRCA 2360)

A quantum leap in terms of the capabilities and potential of interactive holography, holodecks were first envisioned in the design of Starfleet's *Galaxy*-class starships. Intended for exploration missions which could see the vessels and their crews beyond the reach of Federation territory and support for up to 10 years, holodeck technology was viewed as one of many options for providing entertainment and respite over the course of a long journey.

GRZEGORZ PEDRYCZ

Capable of generating an almost-limitless selection of immersive environments, the use of transporter and replicator technology contributed to realizing a physical space complete with objects—and people—which could be touched. Further, holodeck users could create their own simulations based on real or fictional settings, or even a location they created themselves, populated with characters from history, literature and entertainment, or their own imaginations. So real was the tactile nature of such simulations and so total was the immersion that there were documented cases of users who could no longer distinguish reality from fantasy, so simply opted to forsake the former for the latter. By the late 24th century, **holo-addiction** was considered and treated as a psychological disorder.

Smaller, more modular versions, known colloquially as **holosuites**, were also in common use by Starfleet as well as other civilizations. They possessed most of the features of the larger holodecks but were more easily installed when space was at a premium. In commercial spaces, they were used almost exclusively as a form of entertainment.

Use the **Holodeck Complications** table whenever you need to create a random holodeck complication in a game session.

HOLODECK (CIRCA 3190)

In this period, holograms and holotechnology are commonplace. While ships as well as space and ground-based installations still have dedicated holodeck space, smaller versions are also installed in private quarters which allow for the same immersive experience in complete privacy.

.:HOLOGRAPHIC PROJECTORS, EMITTERS, AND ASSISTANTS

While holographic projectors were already in widespread use by the late 2360s, used for everything from personal entertainment to training aids, they also were employed to facilitate covert surveillance. Federation cultural observers, tasked with monitoring and collecting information on pre-warp civilizations, used holoprojectors to generate camouflage that concealed their observation outposts from detection.

The ability to employ independent holograms eventually became a useful tool in all manner of scenarios. No longer confined to holodecks or other fixed environments, holograms deployed via fixed or field-expedient holographic projectors were dispatched almost anywhere and into almost any situation. The first use of holograms in this manner began in the early 2370s with the creation of Starfleet's **Emergency Medical Hologram**.

Generated by holographic projectors installed in the medical sections of Starfleet vessels, holographic doctors began as supplemental staffing support during emergency or first-response conditions. This led to the eventual installation of similar projectors throughout starships and starbases, allowing for holographic physicians or assistants to venture beyond the confines of their medical bays.

.:HOLODECK COMPLICATIONS

D20	HOLODECK COMPLICATION
1–2	Holodeck computer interface does not understand user's request.
3–4	Requested option has not been programmed into the holodeck subsystem.
5–6	User does not have sufficient privileges to access the holodeck.
7–8	User's request violates standing safety procedures or orders.
9–10	User has entered a holodeck programming or customization instruction which contains an error.
11–12	User's request has been overridden by a higher authority.
13–14	User's request has been overridden or rescinded due to an elevated alert status and/or resource prioritization or reallocation order.
15–16	Holodeck malfunctions due to an unexpected power surge which has scrambled holographic support and/or safety systems.
17–18	Holodeck malfunctions due to an encounter with a spatial energy field, distortion, or other anomaly.
19–20	Holodeck has been taken over by a noncorporeal life-form.

▷ THE DOCTOR

Created by renowned scientist and holographic technology engineer Lewis Zimmerman in 2370, the **Emergency Medical Hologram** (EMH) Mark I was the first holographically generated physician to be deployed aboard Starfleet vessels. The Mark I, modeled after Zimmerman himself, presented as a Caucasian male in his early 40s. Essentially a walking, talking computer program, the Doctor could access the sum total of available medical information and instantly put that knowledge to use. Intended for short-duration usage, the EMH was envisioned to act as a supplement to a starship's medical staff during emergencies or other situations where rapid response times were critical.

Early criticism of the Mark I for its terse demeanor and formal, even rude bedside manner prompted Zimmerman to develop a more advanced program designed for longer use and with an increased ability to meld with a medical staff and crew. The result, the EMH Mark II, was soon deployed to Starfleet vessels and installations and the Mark I was decommissioned. In a grave insult to Zimmerman, Mark I EMH holograms were later repurposed for menial tasks such as asteroid mining and other dangerous work.

One notable exception so far as the Mark I's operational record was the version installed aboard *U.S.S. Voyager*, NCC-74656, in 2371. When the vessel was transported 70,000 light-years to the far side of the Delta Quadrant, it sustained heavy casualties, including the entire medical staff. *Voyager*'s EMH Mark I program was initiated to support the emergency, after which it remained active nearly every day of the next 7 years, promoted by *Voyager*'s captain, Kathryn Janeway, to serve as the ship's chief medical officer. Initially confined to sickbay or the holodeck, the Doctor eventually gained access throughout the ship thanks to additional holoprojectors installed on each deck. Due to this prolonged period of constant activity and interaction with the crew, the Doctor learned and improved his personality subroutines to the point he was indistinguishable from a living crewmember. He became a trusted advisor to Captain Janeway and a confidant to many of his shipmates.

When *Voyager* and its crew encountered a time traveler from the 29th century, the Doctor acquired a piece of technology from that era: a mobile holoemitter, to which his program could be transferred from *Voyager*'s main computer and back as needed. When activated and worn on his sleeve, the emitter gave the Doctor full freedom of movement anywhere without the need for additional holoprojectors.

Following *Voyager*'s return to the Alpha Quadrant in 2378, the Doctor remained active with the aid of the holoemitter along with advances in holographic technology. In 2384, the Doctor served under Admiral Janeway aboard the *U.S.S. Voyager*, NCC-74656-A.

Outside of Starfleet usage, the notion of using holograms to perform work considered too menial or hazardous for flesh-and-blood living beings gained popularity toward the late 2370s, with mixed public reaction. Toward the end of the 24th century, it was not uncommon for private merchants to employ holographic projectors aboard their vessels to generate varying numbers of lifelike crewmembers with no need to eat, sleep, or be paid, thereby preserving the bulk of any earned fee for themselves.

HOLOGRAPHIC CONTROL INTERFACES (CIRCA 2390)

Just as holograms became capable of replacing people, so too did they begin to augment and even replace tactile interfaces such as computer consoles and other workstations. This was particularly true aboard spacefaring vessels of this period. With the Library Computer Access and Retrieval System (LCARS) developed in late 2350s and installed first aboard *Galaxy*-class starships before expanding to the rest of the fleet, users were able to create their own customizable touch-sensitive interfaces and save those preferences in the main computer, allowing them to call up those settings for use on any workstation anywhere on the ship.

By the 32nd century, that functionality was ported to a holographic interface that interacts with the user's hands without the need for a physical console. Everything appears in the air before the user, reacting to their movements and translating those motions as instructions to the ship's computer in real time.

PERSONAL ACCESS DISPLAY DEVICES (PADDS)

MOST SPACEFARING CULTURES MAKE USE OF standardized data access devices, which come in a wide variety of form factors and designs. Following are details about some of the most common examples.

.: FEDERATION STARFLEET PADDS

Essentially a clipboard with computer access, the PADD became standard Starfleet equipment during the 22nd century, allowing for direct information entry retrieval to a larger computer system or network. Certain models in use during the mid-23rd century utilized a stylus to access its onboard functionality, but the simpler, direct interface via buttons or touch-sensitive screens proved to be more popular.

Though functionality in those earlier models was limited, by the 24th century such devices offered direct access to ship and ground-based mainframe computer systems. Designed with ease of use in mind, PADDs tended to have minimal control interfaces, although the user could link it to their communicator to achieve a wider range of functions.

By the late 24th century, PADDs were even smaller and substituted the original embedded display screen for a holographic interface as well as communicator technology. As of the late 32nd century, Starfleet PADD functionality is incorporated into the user's tri-function communicator or tricom badge (see page 42 for more information on 32nd century technology).

.: CARDASSIAN PADDS

In keeping with their militaristic nature and their reputation as a society of oppressors and conquerors, it is no surprise something so seemingly innocuous as a simple PADD could embody anything sinister. While some models carry out various data access tasks in a manner similar to devices utilized by the Federation and other powers, there also are versions designed to assist in the interrogation and even torture of prisoners. Devices implanted into a subject's body and controlled by the PADD inflict ever-escalating levels of pain without causing physical harm. Even if the PADD itself is rendered inoperable, another can be easily programmed or linked to the implanted device, allowing the enhanced interrogation proceedings to continue.

▷ CAN A PADD BE HACKED?

Of course it can.

PADDs, at their most basic, are an information repository. Depending on the size of its onboard memory and storage capacity, a PADD can store several gigaquads of data on its own. It can also transfer this data to secondary storage devices such as isolinear optical chips. More importantly, it can also transfer information to and from a much larger computer system or network, such as that of a starship or starbase. Information security procedures are always in place and active within these sensitive systems.

Most PADDs have some form of internal data security processes and safeguards, but they tend to be far less rigorous than those employed by the larger, more complex systems. It's for this reason the security programs overseeing any interface to the larger system tends to be rigorous at the point of access.

Even with these precautions, PADDs and similar data retrieval devices can be compromised. In the hands of someone with the requisite knowledge, such tools can be configured to act as a weapon used to force entry to larger, sensitive information systems. This can be done in such a manner that the PADD owner or user has no idea their device has been usurped for unsavory purposes. The innocent or inadvertent transfer of malicious data, once through the security layers defending a computer's central processes, facilitates data theft or corruption.

The very real risk of information breaches requires all Starfleet personnel to attend regular refresher training on this subject, and security protocols are active and frequently updated within all official computer systems and networks. However, those measures are useless if anyone fails to do their part to keep information safe.

As the saying goes, "Protect what you connect."

.:FERENGI PADDS

The PADDs used by Ferengi are, like so much else of their technology, designed, constructed, and employed for the purposes of facilitating business ventures and earning a profit. As such, their internal systems are geared toward assisting in those endeavors. Currency exchange and transfer is an example of primary onboard functionality, as well as identify verification via thumbprint or—with some models—retinal scan. The devices also store relevant document procurement and editing processes, such as for drawing up business plans, contracts, and invoices.

.:KLINGON PADDS

PADDs employed by the Klingon Empire during the mid-22nd century were more advanced than their Starfleet counterparts. Some models incorporated covert functionality which allowed for circumventing the security protocols within a mainframe computer in order to deliver malicious software into the targeted operating system. Larger and more versatile PADDs were in common use throughout the Empire by the 24th century, able to display information in native Klingon script as well as Federation Standard and Romulan.

.:ROMULAN PADDS

A lingering benefit of the technology exchange program enjoyed with the Klingon Empire in the mid to late 23rd century, PADDs in use by the Romulans possess much of the same functionality as their Klingon counterparts. They also mimic Federation capabilities so far as direct computer interface for a variety of purposes both official and personal, such as accessing audio-visual entertainment files. Smaller, unobtrusive models were a favored tool of Tal Shiar agents, who used them to penetrate an adversary's computer systems and networks.

Use the **PADD Complications** table whenever you need to create a random PADD complication in a game session.

.:PADD COMPLICATIONS

D20	PADD COMPLICATION
1–2	Device does not understand user's request.
3–4	Device is unable to interface with ship / station / other facility's main computer.
5–6	Device contains insufficient storage capacity to complete information transfer.
7–8	Device is physically damaged or otherwise out of commission.
9–10	User does not have sufficient privileges to access requested information.
11–12	User's request violates standing procedures or orders.
13–14	User's request has been overridden by higher authority.
15–16	User's request has been overridden or rescinded due to an elevated alert status and/or resource prioritization or reallocation order.
17–18	User's request has been denied due to main / primary computer internal malfunction.
19–20	User's request has been denied due to temporary or recurring external interference (spatial anomaly, radiation, jamming from external artificial source, etc.).

PERSONAL COMMUNICATIONS

WHILE DIFFERING IN FORM, FUNCTION, AND DEGREE of versatility, portable personal communications devices have long been in routine use by interstellar powers and non-aligned worlds. Following are details for some of the most common examples.

.: FEDERATION STARFLEET COMMUNICATIONS

On Earth, portable communications equipment evolved from radios and telephones used by the military to cellular telephones which exploded in popularity toward the end of the 20th century. By the second decade of the 21st century, such devices were ubiquitous, their functionality expanding far beyond their origins to incorporate mobile computing and access to the planet's information networks. This included the delivery of audio-visual news and entertainment in numerous forms, from music to books along with games, films, television, and live events.

Similar devices have been employed by Starfleet since Earth's first deep-space exploration vessels set course for the stars. Out of operational necessity, portable communications devices designed to support these efforts dispensed with non-essential functionality, leaving it for more appropriate devices utilized by individuals when not on duty. Over time, technological advances gave these tools even greater range and ability while shrinking in size to the point they no longer needed to be carried in a pocket or on a belt, but instead worn as an almost-decorative pendant.

CIRCA 2150

The first such portable model intended for Starfleet use set the basic design standard for decades to come: the communicator of this period was a simple, "few-frills" affair. A flip-top cover protected the device's sensitive interface and internal components, and the unit was small enough to be carried in a pocket. Though real-time communication across great distances was far more limited in this era than the technology would offer in the years ahead, Starfleet personal communicators always incorporated certain features deemed essential when considering the safety of those participating in an away mission. This included an ability for the communicator to be tracked by sensors, allowing for an individual holding or wearing the communicator to be transported back to their ship even if actual communications were hampered.

CIRCA 2255–2270

Slightly larger than its predecessor and hardened for use in environments which might prove unfavorable toward such delicate equipment, the personal communicators used during this period offered greater range and broadcast power. They also contained universal translation technology, which could be augmented by tying into a ship or ground-based computer system. They also included an ability to send hypersonic signals across a broad range of frequency, with the highest such setting capable of inducing mild seismic disruptions. Though they lacked a visual component, these communicators could dock with desktop monitors and other viewscreens to enable such functionality.

CIRCA 2270–2285

During this period, handheld communicators were replaced with models worn on the user's wrist. The first version of this design, deployed in the early 2270s, also included a direct interface to a mainframe computer via encrypted link. This initial model proved somewhat delicate for landing party missions in harsh environments, prompting a larger, hardened version introduced in the early 2280s.

CIRCA 2285–2340

Handheld communicators made a return during this period, first in the form of a somewhat larger and more ruggedized model. The shock and radiation resistant outer casing limited its range and spectrum of available frequencies, but was still easily traced and located via sensors even at great distances. Alongside this version, a second model was also deployed, its design inspired by the "clamshell" communicators of the 2260s.

CIRCA 2340–2350

Handheld communicators were all but obsolete by this period, phased out of normal use in favor of smaller, more powerful and versatile models worn as a pendant. Though technology of this sort was commonplace throughout the Federation and non-allied worlds during this period, Starfleet's version incorporated miniaturized communications technology into the organizational emblem worn by all Starfleet officers.

CIRCA 2350–2400

The change toward a simplified Starfleet insignia worn by all officers and enlisted personnel was accompanied by an even more compact communications device hidden within. The range of these communicator badges or "combadges" was much greater than their predecessors, with an ability to transmit and receive via subspace communications networks and relays. This model also included universal translation protocols and incorporated an ability to link directly to a ship or ground-based mainframe or field computer via encrypted link and voice command. Several variants of this basic design were fielded during this period, with the Starfleet delta a constant part of the design.

Use the **Communicator Complications** table whenever you need to create a random communicator complication in a game session.

.: COMMUNICATOR COMPLICATIONS

D20	COMMUNICATOR COMPLICATION
1–2	Communicator is missing or lost.
3–4	Communicator has sustained physical damage or is otherwise out of commission.
5–6	Communicator's power cell is weakened or depleted.
7–8	No response is received from the contacted party.
9–10	Contacted party is moving or has moved out of communications range.
11–12	Communicator is unable or has been prevented from interfacing with the larger communications system or network of a vessel, base, or other facility.
13–14	Communicator has been affected by extreme weather / atmospheric conditions.
15–16	Communicator has been affected by unusual, naturally occurring radiation interference.
17–18	Communicator has been affected by unusual, artificially occurring radiation interference.
19–20	Communications frequency is being jammed by an outside, artificial source.

▷ CAN YOU HEAR ME NOW?

If it can transmit, it can be blocked. If it can receive transmissions, it can also be blocked.

One of the biggest challenges for any technology, whether newly created or time-tested, is trying to anticipate and mitigate vulnerabilities to situations never before encountered. For communications, the most basic concern is the potential hazards that come with being cut off from your ship or your crew. Whether a natural consequence of spatial phenomena, atmospheric conditions on a newly-discovered planet, or artificial interference caused by some unidentified technology, there is no way to foresee or guard against every possible obstacle. Commanding officers know this every time they send their people into harm's way.

Every new encounter with some previously unknown hazard is at best a learning experience which can inform further advances in equipment and better procedures and countermeasures. At worst, it's a stark reminder that all technology has its limits, and encountering those limits comes at great risk.

REPLICATOR TECHNOLOGY

SIMILAR TO A TRANSPORTER, A REPLICATOR USES matter-energy conversion technology to create nearly any object, or the individual components of a more complicated object. While a transporter's primary function is the safe conversion of living beings from matter to energy and transmitting them to a remote location before reverting them to their original form, replicators begin with raw organic matter designed specifically for the purpose of creating objects to be used and perhaps never returned to their original form. This process is used to conjure everything from food to clothing to tools and weapons, along with computer components or other materials used in construction or repair. With a limited number of exceptions, replicators can produce almost anything on demand.

.: FEDERATION STARFLEET REPLICATORS

As early as the mid-22nd century, the first generation of what led to modern replicators came into standard use aboard Earth's first long-duration space exploration vessels. Though applications were limited during this period, the technology continued to advance through the 23rd century until its use became commonplace a century after that. By the 32nd century, replicators were as omnipresent as holograms were 800 years previously.

PROTEIN RESEQUENCER (CIRCA 2150)

The earliest ancestor to the modern replicator, the protein resequencer, first saw service aboard *Enterprise* NX-01. A supplement to the ship's galley rather than a replacement, the resequencer took raw organic matter and rearranged it at the molecular level to create a modest selection of simple meat, vegetable, and dairy foodstuffs. Opinions varied on whether one could taste the difference between real and resequenced meatloaf and other offerings.

MATTER SYNTHESIZER (CIRCA 2255)

By this period, the process of rearranging raw and recycled matter into food was becoming commonplace. Galleys were still in use aboard Starfleet vessels, but matter synthesizers greatly assisted in feeding crews which numbered into the hundreds. Menu options were more varied and consisted of more complex arrangements, including the combination of foodstuffs to create complete meals rather than just components. Favorite recipes were recorded on data cards which were inserted into a reader adjacent to the synthesizer, and taken with the crewmember when reassigned to a new ship or station. As synthesizer technology continued to advance, so did the uses to which the devices could be put. Food was now served on plates and with utensils which were also manufactured, and once returned were reclaimed by the synthesizer into raw form for reuse. Also available was the capacity to produce simple objects like tools or clothing.

REPLICATOR (CIRCA 2360)

By the time Starfleet was fielding the first *Galaxy*-class starships which boasted "technology unchained," the ability to create nearly any conceivable object out of raw or recycled organic matter was routine. The replicators of this era were close cousins to transporter technology, used for a variety of purposes beyond simple food preparation. The ability to manufacture clothing, building materials, medicine, tools, weapons, and the components to build complex mechanical and computer systems on demand was an essential part of life aboard Starfleet vessels on long-duration patrol or exploration missions. The portable, field-deployable versions available in this era were a boon to colonization, emergency response efforts, and—during times of conflict—forward force positioning in contested regions.

In addition to a voluminous menu of available options, the computer software overseeing the replication process could be programmed, appended, and customized to suit an individual's preferences and desires. Replicator technology was also used in realizing the artificial environments conjured for holodeck simulations, creating objects the user could handle while interacting with the computer-generated scenario.

REPLICATOR (CIRCA 3190)

During this period, as a consequence of the Burn which limited space travel ability to include the exchange and delivery of food and other items of necessity between worlds, replicator technology became omnipresent in nearly every facet of everyday life, and almost no one gave them a second thought. Replicators worked in tandem with transporters, holography, and programmable matter to address nearly every conceivable need or desire.

To that end, it was not uncommon in this era to encounter someone who had never eaten actual, organically

grown food. They instead subsisted on replicated facsimiles, but for them this was natural as they knew almost nothing else. They had little or even no frame of reference for comparison between real and replicated food so far as color, texture, or flavor. Throw in the ability to alter any of these features, and one ran the risk of losing any means of judging differences.

.:CARDASSIAN REPLICATORS

Replicators play as large a role in everyday Cardassian society as they do for other advanced cultures, though the reasoning tends to be one of expediency. Time spent cooking is time unavailable for other pursuits. The ability to create whatever might be required for a given purpose tends to preclude the need or desire to collect possessions. Even so, Cardassians place great value on the arts, holding the creations of painters, sculptors, and musicians in high esteem. While they are content to employ replicators to meet their everyday needs and those of the civilizations they annex, Cardassians often make considerable effort to preserve the artistic expressions of those being subjugated. Naturally, this often means confiscating such works from their original owners.

.:FERENGI REPLICATORS

As a crucial part of conducting successful business ventures, Ferengi make full use of replicators in every conceivable manner. Food and beverage service are obvious examples, but the practice extends much farther into the mercantile space. Charging for the use of replicators to fashion clothing and other leisure items is commonplace, but Ferengi are not above coercing a profit from someone looking to manufacture something of greater need or importance. For some of these entrepreneurs, that might well mean making use of the technology to carry out some form of deception or other con aimed at overcoming a rival. While latinum cannot be replicated—much to many a Ferengi's chagrin—gold is commonly reproduced, and someone with the requisite skill could create fake gold-pressed latinum with just enough of the actual element to fool a sensor scan, at least long enough to close the deal and make their escape.

PAOLO PUGGIONI

.:KLINGON REPLICATORS

Unlike the Federation and other like-minded societies, Klingons tend to view replicators as tools with imperfect yet adequate uses. While replicators are used to create food, especially aboard ships assigned to long-duration missions where resources and storage are at a premium, Klingons often use them as a supplement to meals prepared by actual cooks. Their predilection for consuming certain lower-order life-forms without first killing or cooking them is obviously not aided through the use of a replicator. Away from food consumption, Klingons are quite content to exploit replicators for manufacturing tools, clothing, weapons, and other items of use to a proper warrior.

▷ YES, REPLICATORS DO HAVE LIMITS

Contrary to popular belief, replicators cannot do *everything.*

Make no mistake: they are wondrous devices capable of conjuring nearly everything one might desire or imagine. Regardless, even this incredible technology must operate within a set of guidelines and procedures. Such restrictions are primarily intended to make the most efficient use of what is still ultimately a limited supply of the raw organic matter replicators need in order to function. They're also in place to ensure safety, not only for the user, but also anyone else who might be affected by an errant request gone awry.

For these reasons, replicating dangerous items such as weapons, hazardous or poisonous materials, and certain medications are often restricted. There are also various objects—complex mechanical components, certain internal organs, and dense materials or elements—which cannot be replicated. For example, the rare liquid metal **latinum** is immune to this process, which is why it is used as currency in various capacities by societies that engage in such commerce. The Ferengi place great value in it, trading it in gold-pressed form. Indeed, several of their heralded **Rules of Acquisition** specifically mention latinum. Because of its status, Federation and Starfleet vessels often carry a supply of gold-pressed latinum in the event they need to engage in trade or commerce where it holds value.

So, while replicators are amazing and beneficial tools, like all other equipment or implements, they have thresholds their designs cannot surpass.

.:ROMULAN REPLICATORS

In stark contrast to the Klingons, Romulans embrace the versatility offered by replicators toward manufacturing all manner of necessary and leisure goods. For many Romulans, these devices are simple tools and used as such. Little to no value is placed on anything procured via replicator, whereas hand-crafted items are held in high esteem when given or received as gifts or mementos. This is especially true in the areas of food, literature, and the arts. Replicated meals, books, artwork, or musical instruments are held in thinly disguised contempt, while those created by hand are greatly respected and even treasured.

Use the **Replicator Complications** table whenever you need to create a random replicator complication in a game session.

.:REPLICATOR COMPLICATIONS

D20	REPLICATOR COMPLICATION
1–2	Computer interface does not understand user's request.
3–4	Requested option has not been programmed into the replicator.
5–6	User does not have sufficient privileges to access the replicator.
7–8	User's request violates standing procedures or orders.
9–10	User's request has been overridden by higher authority.
11–12	User's request has been overridden or rescinded due to an elevated alert status and/or resource prioritization or reallocation order.
13–14	User's request has been denied due to insufficient quantities of raw replicator matter or power available to complete the request
15–16	User's request has been denied due to temporary or recurring interference (spatial anomaly, radiation, malfunctioning computer process, etc.).
17–18	Replicator is damaged or otherwise out of commission.
19–20	User's request has been denied as it would present an immediate danger to the facility and/or its personnel.

UNIFORMS

UNIFORMS ARE PERHAPS THE MOST BASIC PIECE OF equipment, issued to each person who pledges to serve a larger entity. Uniforms provide a sense of identity and common purpose. They emphasize the group over the individual, and communicate to others that the wearer is answerable to a central authority for the tasks they perform and the morals and ethics which drive them.

.:STARFLEET UNIFORMS

Like the military forces of Earth in centuries past, Starfleet has utilized a number of different uniform styles since its inception in the early 22nd century. Beginning with jumpsuits that prioritized function over fashion, their lineage was much in line with submariners of the 20th and 21st centuries as it was the astronauts of different Earth nations during that same period. However, even in these early stages, the concept of a hierarchy between distinct divisions within Starfleet based on areas of expertise was established. The blue jumpsuit uniforms of the pre-Federation period were accented with colored piping: gold for command and administration, blue for sciences and medical personnel, and red for operations and security.

Over time, new uniform styles emerged and alternatives to the division designations were employed, such as the period between 2230 and the mid-2250s when the Command division remained gold while Sciences was denoted by silver, Operations by copper, and Medical by white. By the late 2250s, the original scheme was reinstated, now represented by the color of the uniform tunic.

By the 2350s, Starfleet wanted a new design of uniform which lessened the more martial nature linking the original, Earth-based organization to the armed forces of the 20th and 21st centuries. Despite its crisp, confident look, the uniform in use to this point in time—with its heavy maroon tunic and black trousers bloused over polished boots—was perhaps the version which reinforced this notion the strongest. A slimmer, less militaristic look was sought.

The result was a single piece, form-fitting jumpsuit in which the wearer's division color dominating the upper torso of an otherwise black uniform. Rank insignia, for decades worn as stripes on the shirt cuffs or emblems affixed to the tunic's clasp as well as the wearer's left wrist, now were denoted by a series gold or "hollow" black pips on the right side of the uniform's collar. It was also at this point the division colors were changed: red for command and administration, blue for sciences and medical, and gold for operations and security.

.:KLINGON UNIFORMS

Unlike Starfleet, the uniforms worn by soldiers of the Klingon Empire have largely retained their general appearance through the ages. Designed with an emphasis on protection during individual combat, Klingon uniforms reflect the stark, rugged nature of their wearers while at the same time speaking to an exalted heritage. Perhaps the most distinctive aspect of any Klingon's uniform is the sash worn over the warrior's shoulder. To wear one was to symbolize one's affiliation with a noble House of the Empire, and this included an affixed emblem denoting that House.

.:ROMULAN UNIFORMS

Romulan uniforms have almost always characterized the people who wear them: Conventional, traditional, and guarded. Gray tunics with high collars, broad shoulders, and trousers bloused over high, polished boots typify the average Romulan soldier regardless of rank. Rank insignia along with emblems denoting other affiliations were the closest one came to expressing even a hint of individuality.

.:PERSONAL LOG

COMMANDER XANTHUS TH'RAVIQ

First contact with a newly discovered civilization brings conflicting emotions. There is anticipation, to be sure. After more than a century of actively searching and exploring, much of the Galaxy remains a mystery. Therefore, an occasion like this is to be celebrated.

So, why am I nervous?

The people inhabiting the planet we now approach are aware of our presence. We detected a rash of scanning beams aimed in our direction soon after we entered the solar system. We have been broadcasting universal greetings on all frequencies, but so far there has been no response. Will we be welcomed with warmth, or suspicion?

Either way, we must be prepared.

The distant future of the 32nd century may seem far removed from the more familiar environs and technologies of the 23rd and 24th centuries, but many of the underlying ideas are still essentially the same.

.: DETACHED NACELLES

A common aspect of starship design in the 32nd century, detached nacelles increase the efficiency and maneuverability of a ship at warp. Since the development of warp drive, scientists struggled with the problem of nacelle pylons: the necessary structures holding the nacelles away from the ship create a disruption in the warp field which manifests as a sort of subspace 'drag'. At higher warp factors, this can create a disparity between the nacelles and the hull that risks causing catastrophic damage to the ship.

For centuries, theoretical models of warp fields would assume the hypothetical 'detached nacelles' before adding in the additional complicated influence that nacelle pylons have on the warp field, and the term became a byword for an idea that only works in theory. By the 32nd century, technology increased to the point where the theoretical was possible.

Wireless power transmission technologies and powerful force fields allow a programmable matter nacelle to float free from the ship's hull. Not only does this remove the disruptive effect of the pylon, but it allows the ship's warp field to be fine-tuned on the fly by adjusting the relative position of the nacelles during flight.

A ship with the **Detached Nacelles** trait reduces the Difficulty of all tasks related to travelling at warp speeds by 1. Further, the ship may ignore the first complication rolled each scene on any task roll related to travelling at warp. This benefit is lost if the ship suffers one or more Engine or Structure breaches.

.: HOLOGRAPHIC MEDICAL OFFICER

Far removed from the Emergency Medical Hologram of centuries past, 32nd century counterparts offer a broad range of physical, mental, and emotional health care on demand. Rather than being modeled after living beings past or present, the physical manifestation of the physician is customizable based on a vast database of features, characteristics, and clothing options.

.: PORTABLE REPLICATOR

A field-deployable version of the standard Starfleet replicator has existed since the 24th century. Current versions are much smaller and more powerful, requiring less raw replicator matter than their predecessors.

- **USER INTERFACE:** Commands to the replicator can be entered manually via the holographic interface, or through the use of voice commands.
- **PHASE TRANSITION CHAMBER:** Essentially a compact transporter pad. This is where the replicated item materializes.
- **RAW REPLICATOR MATTER STORAGE:** The key component for a replicator to work. Items can be also inserted into the Phase Transition Chamber to be broken down and recycled back into raw matter for future reuse.

.: PROGRAMMABLE MATTER

Composed of specialized nanomolecules, programmable matter is a transformative material that can assume any form and function as almost any kind of technology. Programmable matter forms the basis of most tools and interface technologies in the 32nd century, and adapts easily to the needs and desires of its users, allowing them to create intuitive, responsive, and accessible user experiences.

Aside from its use in control systems and tools, programmable matter is used to produce furnishings and other fixtures within starships, space stations, and other places where space may be at a premium, or in multi-function rooms.

.: TRANSPORTERS

While portable transporters have existed since the 24th century, most versions were bulky devices, severely limited in their functions, or both. By the 32nd century, compact wearable personal transporters were commonplace, and could even be fitted within tricom badges. Starfleet officers in the 32nd century typically use their personal transporters to move swiftly around the ship, only using turbolifts or other internal access when necessary.

These transporters can complete a full transport in under a second, and have a relatively short range,

transporting the wearer and their personal effects a few kilometers, and requiring a short time (around 30 seconds) to recharge after use. However, their utility comes in their ability to link to a larger transporter system mounted aboard a ship, station, or planetside facility: these allow longer-distance transports (such as from orbit to surface), and mean that the device recharges more quickly.

.: TRICOM BADGES

By the late 32nd century, Starfleet adopted **tricom badges**, tiny wearable devices which combined several common devices carried by Starfleet officers in centuries past. Each tricom badge served as a communicator, a holographic PADD, tricorder, and a portable transporter. The varied functions were controlled by a mixture of voice control, hand gestures, and interacting with holographic displays.

Any character issued with a tricom badge is assumed to have been taught the appropriate gestures and commands to operate the devices effectively. On the aesthetic front, the wearer's rank insignia is now incorporated into the design along with the Starfleet delta.

- **ONBOARD COMPUTER:** Along with direct access to a starship or starbase's computer system, the badge contains its own portable computer system with much of the same functionality to be found in those larger counterparts. Access is via voice commands.
- **PADD:** The user's personal access display device is also available via holographic interface. To access this functionality, the user makes a fist followed by opening their hand to expose an upward-facing palm.
- **TRANSPORTER:** Direct transport is available without first having to beam to a ship or-ground-based transporter. To select a destination, tap the badge once to call up a holographic coordinate system, and enter the desired destination before tapping the badge a gain. Tapping the badge two times in rapid succession transports the user to previously determined "Home" coordinates.
- **TRICORDER:** The full functionality of the physical device is available via holographic interface, capable of operating in sciences, engineering, and medical modes.

.: UNIFORMS

The standard duty uniforms in the 32nd century are much like those in earlier centuries, aside from developments in comfortable, hard-wearing fabrics. However, the uniforms themselves are often accompanied by other technologies. Using programmable matter, standard uniforms can deploy an environmental suit in an instant when required. Thus, any character wearing a Starfleet uniform (or the uniform of a similarly equipped service) is considered to always have an environmental suit when needed.

.: WEAPONS

Standard weapons such as phasers and disruptors are, in practice, unchanged from their counterparts in centuries past. The technology has been refined over time, making them more power-efficient and more adaptable, but a phaser is still a phaser. The biggest difference with 32nd century phasers is their construction: they are made of programmable matter. This is normally stored within a small cuff worn on the wrist, or clipped onto the cuff of the user's uniform, and deploys instantly when the user gestures: the standard gesture is to mime 'drawing' the weapon from a holster, at which point the weapon appears in their hand.

Furthermore, these can be switched between pistol and rifle versions with little effort. A *Prepare* minor action allows the user to switch a Phaser Type-2 to a Phaser Type 3 (or a Disruptor Pistol to a Disruptor Rifle) or back again. Switching to rifle mode counts as **Escalation**, adding 2 to Threat, but there is no opportunity cost to switch into rifle mode.

.: WORKSTATIONS

Just as 24th century computer interfaces and control consoles could be tailored to each user's preferences, with those settings stored for immediate recall in the ship or starbase's main computer, modern workstations feature holographic and programmable matter interfaces which interact with the user's preferences as stored in their tricom badge. Proximity to the workstation immediately calls up the control console with the user's personalized settings. The heads-up display moves with the user and remains active so long as the user stays within proximity to the workstation.

CHAPTER 3

DIPLOMATIC ASSETS

3.1	THE PURVIEW OF DIPLOMATS	46
3.2	UNIVERSAL TRANSLATORS	48
3.3	ANSWERING DISTRESS CALLS	52

JENS LINDFORS

.:CHAPTER 3.1

THE PURVIEW OF DIPLOMATS

"CAPTAIN, HAVE WE NOT HEARD THE CHIMES AT MIDNIGHT?"
- GENERAL CHANG

RODRIGO GONZALEZ TOLEDO

COMMODORE NELLA XEN

Diplomacy is essential to Starfleet's operations, especially when dealing with first contact, second contact, or emergency crises. Diplomacy will never be automated. Flesh and blood individuals are key. As such, it is good to either master the skill of diplomacy or have one or two diplomats on call for when the need arises.

STARFLEET DIPLOMACY IS THE PRACtice of managing galactic relations and conducting negotiations between representatives of different worlds. It involves the use of dialogue, negotiation, and other peaceful means to resolve conflicts, build alliances, and promote mutual understanding and cooperation. Diplomats come in different forms: Ambassadors, ambassadors-at-large, assistant consuls, special emissaries, and envoys.

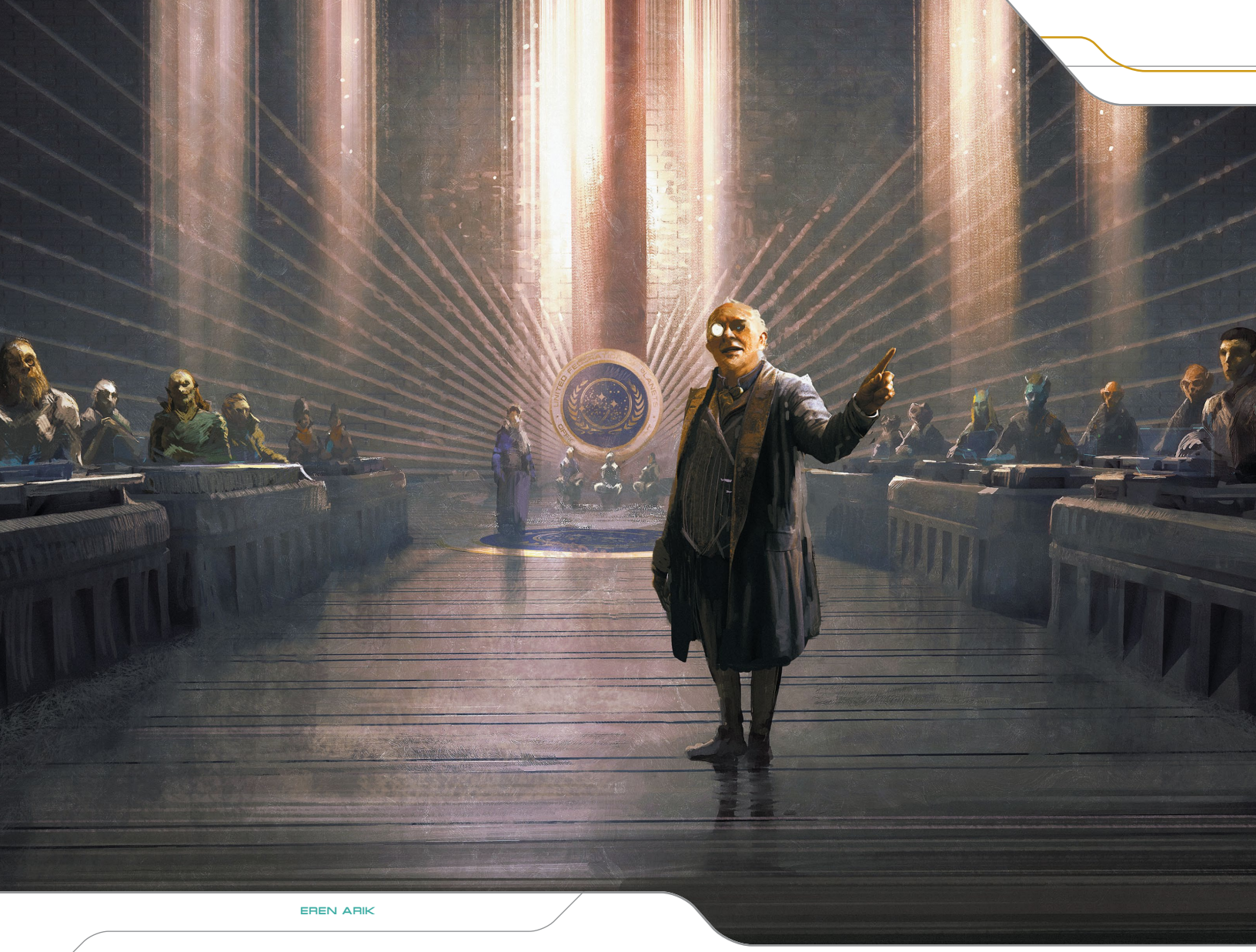
Though technology like the **universal translator** exists and policies and procedures for establishing relationships with other species are in place, it takes sentient individuals to maintain good relations. Diplomats help mediate and resolve conflicts through negotiation and dialogue, preventing escalation and fostering peaceful solutions. They promote cultural exchange and understanding, helping to bridge gaps between different societies and reducing cultural misunderstandings.

Diplomats work to maintain and enhance political relationships, ensuring stable and cooperative intragalactic relations that can lead to economic and social benefits. They represent and advocate for their homeworld's interests and policies abroad, ensuring that their world's voice is heard in interstellar forums. By fostering good relations and trade agreements, diplomats can help promote economic development and open new markets for their homeworlds.

.:STARFLEET'S DIPLOMATIC CORPS

Starfleet's Diplomatic Corps works with the Federation's **Department of Interplanetary Affairs** to handle diplomacy with other cultures. Starfleet crews are often the first to meet new cultures or deal with diplomatic events, and they must follow Federation law and interests until a specialist diplomat arrives. The Diplomatic Corps trains Starfleet officers in negotiation, diplomacy, and first contact etiquette. The Diplomatic Corps makes and updates rules and guidelines for many situations, such as first contact, colonization, and trade and treaty talks. Diplomatic Corps members usually work at a starbase and enter the field only for specific jobs. Some starships and their crews focus on diplomatic affairs and have a Diplomatic Corps member on board.

Use the **Diplomatic Complications** table whenever you need to create a random complication during a diplomatic scene.



EREN ARIK

.:DIPLOMATIC COMPLICATIONS

D20	DIPLOMATIC COMPLICATION
1–2	Diplomat abducted by group opposed to a solution.
3–4	Diplomat insists on micromanaging crew.
5–6	One group has excessive demands and the diplomat is more than willing to acquiesce.
7–8	Diplomat creates a major cultural misunderstanding by misinterpreting a local custom.
9–10	Political instability endangers away team.
11–12	Species is suspicious of all outsiders.
13–14	Technology exchange goes wrong.
15–16	Someone is poisoned at a diplomatic banquet.
17–18	Spy network is operating within the diplomatic mission.
19–20	Assassination attempt occurs during diplomatic hearing.

.:CHAPTER 3.2

UNIVERSAL TRANSLATORS

"OH, WHOA! YOU UNDERSTAND JANKOM POG? WAIT, JANKOM POG UNDERSTANDS YOU? HOW?"

- JANKOM POG

RODRIGO GONZALEZ TOLEDO

ENSIGN LANIYAR TENNAN

Without tools like the universal translator, it would be impossible for us to push forward our mission of exploration. But, it is one thing to understand what another person is saying and a totally different thing to comprehend them.

THE **UNIVERSAL TRANSLATOR** IS A highly-advanced computer program designed to facilitate communication between different species. It doesn't just transmit data; it interprets and converts one language into another in real-time, allowing for smooth verbal or data exchanges. This is crucial because effective communication relies on a shared set of symbols and concepts, which is challenging even among Humans on Earth, let alone between entirely different alien species with unique biologies, cultures, and ideas.

THE END OF BABEL

THE PROCESS OF DERIVING A TRANSlation matrix begins with gathering a comprehensive sample of the unknown language. Ideally, this sample includes conversations between native speakers, providing a rich dataset for analysis. The universal translator then performs extensive pattern analysis to understand the language's symbology, syntax, usage patterns, vocabulary, and cultural nuances. With a sufficiently large sample, it can create a simplified language subset within minutes, though more detailed analyses are preferred for diplomatic situations to ensure accuracy and cultural sensitivity.

.: THE BIRTH OF LINGUACODE

One innovative feature of the universal translator is its ability to translate into **Linguacode**, a culturally neutral language form developed by *Enterprise* NX-01's communications officer Hoshi Sato in the 2150s. Linguacode is a mode of communication that many warp-capable civilizations should be capable of deciphering if the species has similar translation technologies. This ensures the translations are as accurate and unencrypted as possible, facilitating clearer communication.

However, the quality of the translation matrix depends heavily on the size and quality of the language sample. Limited samples can result in basic, sometimes flawed translations, especially when dealing with complex concepts or vocabulary that deviates significantly from the initial sample.

.: CONSTANTLY EVOLVING

The universal translator is not static; it continuously updates its translation matrix based on ongoing usage. This means it improves over time, becoming more accurate as it accumulates more linguistic data. In practice, this iterative process starts with simple subjects to build a robust foundation before moving on to more complex or sensitive discussions. This approach helps ensure the translator provides reliable and meaningful translations, enhancing interspecies communication across the Galaxy.

The universal translator's design has evolved over time, becoming more portable and integrated into Starfleet technology well into the 32nd century.

2100S

The universal translator was still experimental when *Enterprise* NX-01 launched in 2151. This handheld device had a keypad and a display. A standard-issue Starfleet communicator could attach to the top of the device. This version of the universal translator still depended on a skilled linguist to help decipher more complex language problems. Ensign Sato's linguacode invention sped up the translation of unknown languages. By 2155, small translators could translate multiple languages at once.

2200S

By the early 2200s, Starfleet had fully incorporated universal translators in handheld communicators. By the mid-2200s, the universal translator was programmed with more than 1,000 languages. The technology was also incorporated into the communication systems of most Starfleet vessels. Some universal translators, such as the ones supplied in Class F shuttlecraft, came in a wand-like design. Later developments allowed the universal translator to compare brain wave patterns to map certain universal ideas and concepts common to most intelligent life, expediting the translation process.

2300S

Universal translator technology advanced at a remarkable rate by the 2300s. They were now incorporated into Starfleet-issued combadges. The translation was natural and seamless, so much so that beings unfamiliar with the technology thought others were speaking their own language. By this time, the universal translator could even translate binary language and be incorporated into a holomatrix.

.: THE NON-HUMANOID CONUNDRUM

Though the universal translator compares brain wave patterns to map certain universal ideas and concepts common to most intelligent life, this does not always work well when interacting with non-humanoid lifeforms. Roll on the **Alien Language Encounters** table to determine the likelihood of comprehending a non-humanoid's communication patterns.

▷ DIFFERENT SPECIES, DIFFERENT TRANSLATORS

While many spacefaring civilizations have adopted or adapted the Federation's universal translator, some have developed radically different translators. For instance, Ferengi of the 24th century have small translation devices they can insert into their ears. These devices can be disrupted by different energy types like ionic, solar, or beta radiation. Fixing this issue can be resolved by smacking one's head or accessing the device to reset it with a small, elongated object.

.: ALIEN LANGUAGE ENCOUNTERS

D20	JUST HOW ALIEN IS THIS LANGUAGE?
1–4	**DIFFICULTY 1:** The language bears many similarities to languages in your database.
5–8	**DIFFICULTY 2:** The language bears some similarities to languages in your database.
9–12	**DIFFICULTY 3**: The language bears a few similarities to languages in your database.
13–16	**DIFFICULTY 4:** The language bears one or two similarities to languages in your database.
17–19	**DIFFICULTY 5:** The language bears no similarities to languages in your database.
20	**IMPOSSIBLE:** The translator cannot parse the language due to its extremely alien nature.

UNDERSTANDING THE UNIVERSAL TRANSLATOR

IT IS IMPORTANT TO UNDERSTAND HOW THE UNIVERsal translator functions should the device fail. Astute officers with a background in xenolinguistics or multilingual neural machine translation might need to manually engage a computer to complete the translation process. This could become a **linear challenge** during gameplay, structured as follows:

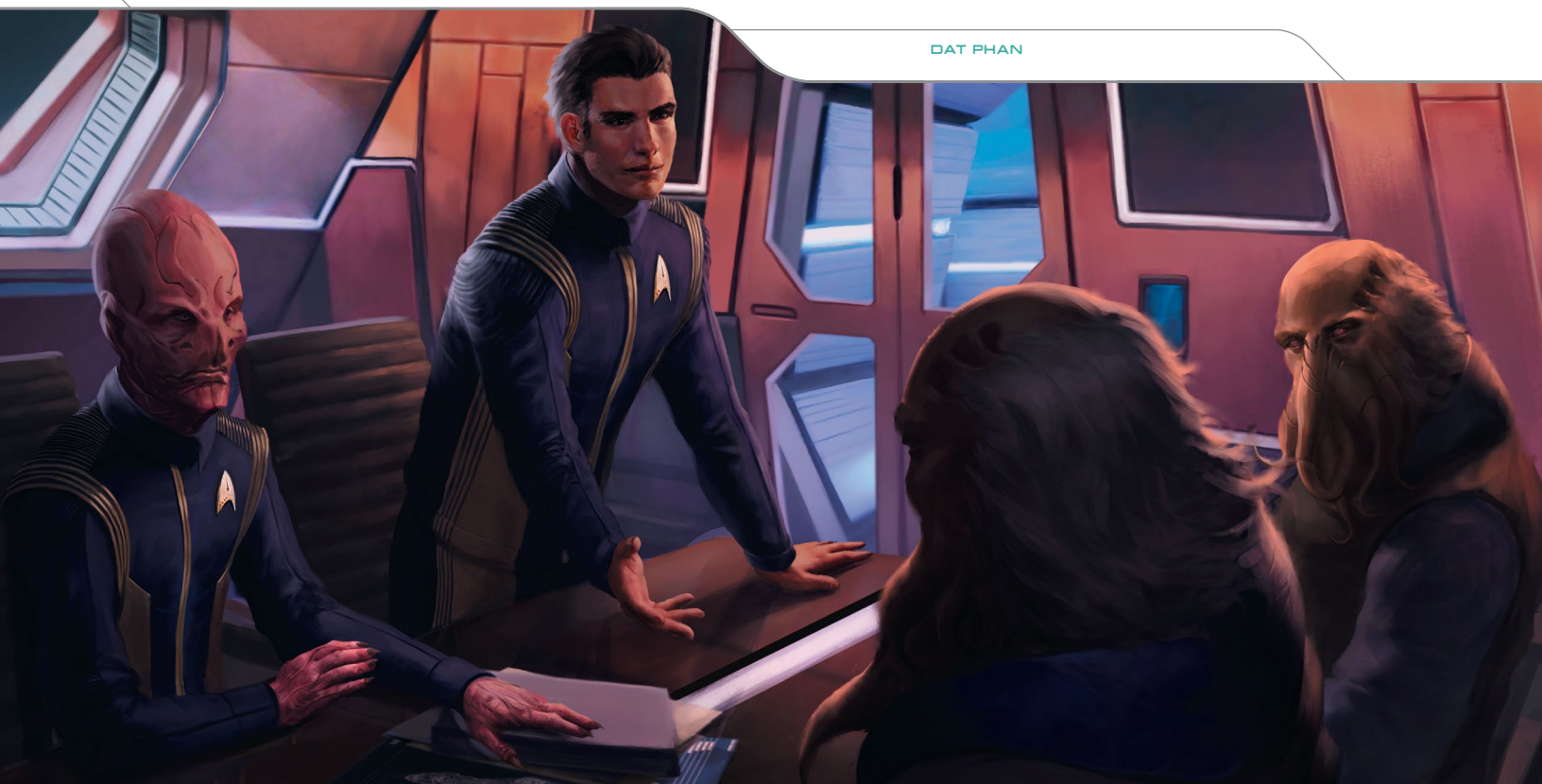
- **COLLECTING LANGUAGE SAMPLES:** The translation matrix needs a lot of examples of the alien language. The more it has, the better it can understand and translate. Under most circumstances, obtaining a language sample should be easy. Audio recordings, digitized books, chat logs, instructional videos, surveys and questionnaires, language databases, and community engagement are all ways to obtain language samples. This is a Difficulty 0 **Control + Science** task. However, you may increase the Difficulty of this task if these sources are scarce or if you are confronted with an extremely alien language. (You may choose to roll on the **Alien Language Encounters** table on page 49 to determine a Difficulty for this task.)
- **ANALYZING PATTERNS:** The translator looks at how the language is structured—things like symbols, grammar, and common phrases. It even considers cultural differences to make sure the translation makes sense. This is a Difficulty 2 **Insight + Science** task.
- **CREATING A TRANSLATION MATRIX:** Using all the information collected, the translator builds a system to convert the alien language into an understandable language. This allows for real-time conversations, meaning you can talk back and forth without waiting. This is a Difficulty 2 **Reason + Science** task. If successful, a trait reflecting successful translation of the language can be created. Characters may load the matrix into computers and use it to facilitate clear communication.

.: POSSIBLE COMPLICATIONS

No translation is perfect. Misunderstandings could occur even with the best language samples. Cultural influences, slang and jargon, technological advancements, geographical isolation, generational shifts, political and social change, multilingualism, trade and commerce, natural evolution, and neologisms could create subtle linguistic changes leading to major diplomatic upheaval.

If the translator doesn't have enough language samples, the translations might be basic or sometimes even incorrect. Talking about simple things like "day" or "water" is easier. Discussing more complex or sensitive topics might be tricky until the translator has learned more.

Players might roll a complication during the process of trying to understand their fellow galactic citizen. Or you may decide to have players roll on the **Universal Translator Complications** table to create some tension in a scene.



DAT PHAN

.:UNIVERSAL TRANSLATOR COMPLICATIONS

D20	UNIVERSAL TRANSLATOR COMPLICATION
1	The universal translator starts predicting the future.
2	Universal translator turns all language into rhyme and song.
3	All translations are amorous in nature.
4	All translations are violent in nature.
5	Klingon is the only language everyone hears.
6	Universal translator technology purged/stolen by agent seeking to benefit from chaos and confusion.
7	All translations are sarcastic in nature.
8	Translator malfunctions sending all communiques to an enemy vessel.
9	Translator becomes the grammar police, taking on the duty to correct crew's grammatical mistakes.
10	All translations are in halting Kirk-esque speech.
11	Random radiation causes translation matrix to fail; cannot be restored until radiation is purged.
12	All statements end with the phrase, "Do you see what I am saying, honey?"
13	Users receive a slight electrical jolt every time they use their translator.
14	Everyone's voice is changed into a deafening, screeching pitch.
15	The device begins to send out random distress messages to other vessels.
16	Using the device activates random blue, yellow, red, and black alerts (if available).
17	The translator commandeers the users' nervous systems to save a subspace species.
18	Everyone starts communicating at a rapid rate in binary. Ship systems accept telepathic commands.
19	The universal translator begins divulging secrets it has heard over the years.
20	All translations are in childlike gibberish.

▷ THINK OUTSIDE THE TALK

Not all languages are verbal. Different animal species use different forms of language to communicate. You may want to create scenarios wherein the aliens interacting with your crew do not use a language the universal translator can decipher. In addition to sign language, some key types of non-verbal languages include:

- **ARTIFACTS:** The use of clothing, accessories, hairstyles, and other personal artifacts to communicate social status, personality, and other attributes.
- **BODY LANGUAGE:** Gestures, facial expressions, and posture can express locations, emotions and reactions, or communicate confidence, openness, aggression, or submission.
- **ENVIRONMENTAL LANGUAGE:** The use of environmental factors like color schemes, lighting, and the arrangement of space to create specific atmospheres and convey messages, often used in interior design, marketing, and architecture.
- **HAPTICS:** The use of touch to communicate; the meaning of touch can vary significantly across different cultures and contexts.
- **OCULESICS (EYE CONTACT)**: The use and patterns of eye contact to convey attention, interest, affection, or hostility.

.:CHAPTER 3.3

ANSWERING DISTRESS CALLS

"YOU'RE PROPOSING THAT WE GO BACKWARDS IN TIME, FIND HUMPBACK WHALES, THEN BRING THEM FORWARD IN TIME, DROP THEM OFF, AND HOPE TO HELL THEY TELL THIS PROBE WHAT TO GO DO WITH ITSELF?"

- DR. LEONARD MCCOY

RODRIGO GONZALEZ TOLEDO

DR. VORAAL

Many people join Starfleet to fill a need for exploration, discovering the unknown. During our trek, we come across others that require emergency aid. And that is where Starfleet becomes a lifeline. Yes. It's not only about what we need, it's about what others need too.

STARFLEET UNDERSTANDS THAT EACH emergency mission is unique and that the needs of each situation can vary significantly. For this reason, Starfleet develops solutions tailored to the specific requirements of each mission. By considering cultural, linguistic, and climatic aspects, mission specialists apply their extensive knowledge to ensure the effective use of resources and to uphold the dignity of those they assist. Starfleet aligns with the efforts of major aid organizations and agencies to effectively meet their needs and requirements during natural disasters and emergencies.

Starfleet's extensive experience working with planetary governments, Federation agencies, and aid organizations has taught them the vital importance of maintaining a robust supply chain. Over the centuries, the Federation has developed a massive transport network that can punctually reach most any location in the quadrant where emergency supplies might be needed. As a precaution, relief supplies are packaged with the utmost care to ensure they reach their destination in perfect condition.

Methods have been developed that help Starfleet work methodically and take care of the entire production process, from advising to delivery and beyond. Your crew might be brought in to deal with one, several, or all facets of an emergency.

.: ANALYSIS AND CONSULTATION

Starfleet begins by consulting (if possible) with the governing body of the civilization experiencing the crisis. If government representatives are not available, cultural experts or diplomatic assets might be consulted. Reliable products that meet all technical requirements are adapted to each situation's particularities. Starfleet believes in innovation and functional design but the distinct needs of the recipients of the supplies must be considered.

Sample focuses include Crisis Response, Cultural Studies, Data Analysis, Hazard Awareness, or Observation.

.: DESIGN, CONFIGURATION AND ASSEMBLY

Starfleet designs easily identifiable packaging and shipping containers using icon systems to ensure that anyone can understand the kit. The elements in the emergency kits, as well as the suppliers they come from, undergo the strictest controls in a quality management system to guarantee that they meet the required standards. The Federation has a vast network of suppliers that have been validated by Starfleet's quality management system.

Sample focuses include Business, Cargo Bay Management, Design and Modeling, Negotiation, Quality Control, Resource Management, and Supply Chains.

.:PROCUREMENT AND LOGISTICS

After the kits have been assembled, the procurement phase begins. Colonies and starbases might serve as shipping hubs to facilitate faster distribution of supplies. Assigned vessels will pick up the supplies and certify that all items correspond to the determined specifications. Logistics experts put the most feasible solution into action, compactly and securely storing the goods and determining the best navigable routes so that they reach their destination by the required deadline. In addition, the logistics department prepares all necessary documentation to avoid delays with various customs agencies, such as health certificates, certificates of origin, etc.

Sample focuses include Administration, Astronavigation, Bureaucracy, Fleet Management, Logistics, Trade Routes, or Transporters.

Use the **Planetary Crisis** table whenever you need to create a random planetary crisis.

.:PERSONAL LOG

COMMODORE NELLA XEN

It took a while to figure out, but Ensign Tennan was the one who realized our current universal translation protocols aren't sufficient to make sense of whatever language the planet is transmitting toward us. It's unlike anything previously encountered, and when you consider how long Starfleet's been doing this, along with the Vulcans, Andorians, and Tellarites before us? That's saying something.

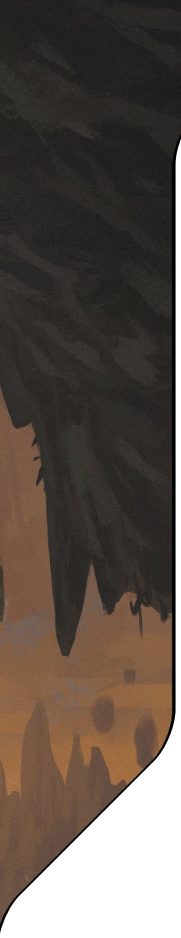
So far, they seem to present no threat, and we're still getting a handle on their technology level. Our sensors detected a network of communications relay stations scattered through the solar system. If they can detect us in near-realtime this far out, it's possible they have the means to send a ship to investigate. Or, a weapon to destroy us.

Diplomacy's a tricky thing.

I've ordered us to hold position at the edge of the solar system while the communications team works on a solution.

.:PLANETARY CRISIS

D20	PLANETARY CRISIS
1	Weather control system collapses creating planetary environmental upheaval.
2	Planet core cooling causing major tectonic shifts.
3	Recently attacked by enemy forces; resources gravely depleted.
4	Biotechnological virus decimating population and threatening extinction.
5	Ancient and monstrous native species come out of hibernation.
6	Experiments into new types of energies create radioactive wastelands.
7	Massive windstorms devastate entire continent.
8	A crashed alien vessel destroys a large population center.
9	Solar superstorm knocks out power and communications.
10	Gamma ray bursts from supernova strip away ozone layer.
11	Dust and ash from an asteroid strike blocks all sunlight; impact winter begins.
12	Supervolcanic eruption leads to acid rain, volcanic winter, and widespread crop failures.
13	Food production at an all-time low; mass starvation imminent.
14	War between two factions creates unprecedented destruction.
15	Refugees flee to affected planet; resources are limited.
16	Black hole forming in star system, gravitational forces disrupt orbit of planet.
17	Artificial intelligence takes over resource distribution, leading to catastrophe.
18	Uncontrolled climate change from greenhouse gas and deforestation.
19	Drought has stricken the entire planet; wars over accessible water.
20	Roll two crisis situations happening simultaneously.



CHAPTER 4

SCIENTIFIC EQUIPMENT

4.1	AN ARRAY OF DEVICES	56
4.2	SCANNING APPARATUS	58
4.3	AWAY TEAMS IN ACTION	61
4.4	NON-FEDERATION SCIENCE	65

.:CHAPTER 4.1

AN ARRAY OF DEVICES

"WE CAME DOWN TO RETRIEVE MY COMMUNICATOR. NOW WE'VE LOST TWO OF THEM. NOT TO MENTION MY PHASE PISTOL AND A PAIR OF SCANNERS."

- LIEUTENANT MALCOLM REED

RODRIGO GONZALEZ TOLEDO

COMMODORE NELLA XEN

I expect every officer on my crew to be intimately familiar with the vast array of technology available for use both aboard ship and on away missions. They will rue the day they forgot to utilize the correct beacon, failed to memorize proper isolinear chip placement, or didn't pack enough self-sealing stem bolts!

IN ***STAR TREK ADVENTURES***, MOST scientific equipment is represented as **equipment traits**, and the name of the item is also the name of the trait (see page 250 of the core rulebook). For example, a **portable electron microscope** helps a character scan for viruses invisible to the naked eye and makes tasks like analyzing a skin sample easier. Most items don't have specific rules of their own. You can find descriptions of many common items in this chapter to help understand how they work.

Getting most items is usually easy. Even a small starship has storage compartments containing a variety of commonly used tools. Shipboard replicators—if available in your era of play—can make other items or parts for those items quickly.

CHRONOMETER (NO COST)

A chronometer, or clock, is a device used to measure and display the passage of time, often featuring intricate mechanical components or digital systems. In both planetary and spacefaring contexts, chronometers serve crucial timekeeping functions, from tracking daily hours to maintaining stardate synchronization aboard starships. While traditional mechanical clocks add aesthetic appeal, advanced chronometers may be affected by temporal anomalies, sometimes stopping or running backward. Despite their varied forms, these devices are essential for regulating and synchronizing time across different environments.

EMERGENCY TRANSPONDER (OPPORTUNITY 1)

An emergency transponder, also called a command transponder, is a portable device used to send emergency signals. Each transponder has its own unique frequency and code, making it easy to identify and trace the signal. These devices are important in emergencies, providing a way to communicate when other systems do not work. The main job of a transponder is to send out a signal in all directions, which can be picked up by nearby ships or stations. This ensures the distress call reaches a wide area, increasing the chances of a rescue. When activated, the transponder sends a nonstop distress signal with important information like the user's ID and location.

EXOCOMP (OPPORTUNITY 2)

Exocomps are industrial and utility robots featuring a micro-replication system that can create tools for problem-solving and forms new circuit pathways in the exocomp's memory when performing new tasks, enabling it to learn. The more tasks it performs, the more pathways are formed. Problems are entered through a command pad, and the exocomp determines which tool is needed, then replicates that tool. This adaptive mechanism allows exocomps to continually improve their problem-solving abilities, making them highly efficient and versatile. Their ability to learn and adapt makes them invaluable in industrial and utility applications.

ISOLINEAR OPTICAL STORAGE (NO COST)

Isolinear storage devices, usually in the form of chips and rods, are advanced tools used for information storage and operational control in various technologies. Replacing less efficient duotronic enhancers, these devices became standardized around 2329. They facilitate warp drive in starships, store memory in portable devices, and serve as primary components in various spacecraft computers.

LIFE SUPPORT BELT (PROTECTION 3, OPPORTUNITY 1, ESCALATION 2)

The Starfleet Extra Vehicular Activity (EVA) Atmospheric Containment Field, also known as the **life support belt**, allows free movement of limbs and fine motor control when using tools. However, these advantages are not sufficient to replace standard EVA suits. The life support belts were removed from active service in 2271 but remained on some Starfleet vessels until the 2290s. Characters can use life support belts when standard EVA suits are too cumbersome for small spaces. Life support belts use their power to protect the user, starting with 8 Stress. Environmental damage reduces this Stress, and if it reaches 0, the belt's protection ends, exposing the character to environmental conditions.

PATTERN ENHANCERS (OPPORTUNITY 1)

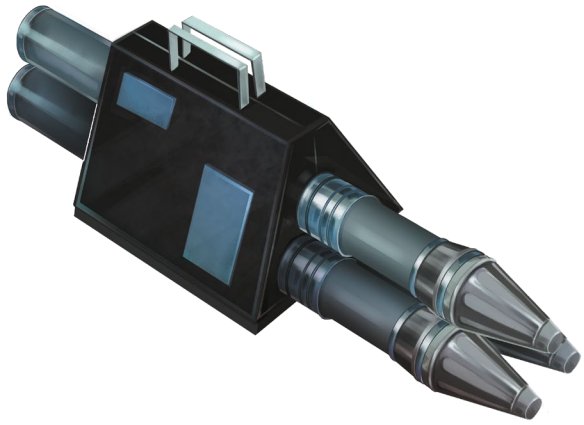
A pattern enhancer, also called a transporter enhancer, is a portable device able to strengthen the signal of a transporter when the signal is not strong enough to maintain pattern cohesion on its own. Pattern enhancers have been utilized to even cut through some types of force field.

> ***GAMEMASTER NOTE:*** *There are times when an easy transport in and out of a zone could hamper your story's plot. Or you may want to increase the tension, allowing players to bring along transporter enhancers only to have the equipment destroyed mid-mission.*

In the 23rd century, Starfleet's pattern enhancers had a spinning part at the top that deployed an antenna-dish, indicating the enhancement field was active. By the late 24th century, pattern enhancers were about one meter tall and had four sections: three legs stored inside the body when not in use, a shiny silver main body, a control cuff, and a cone-shaped top that glowed when turned on. They were used in sets of three, arranged in a triangle about one to seven meters apart. In the early 2370s, a smaller version with the same basic structure was also used. By the 2390s, handheld transport pattern enhancers were available.

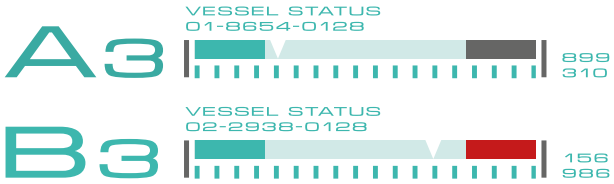
▷ PATTERN ENHANCERS IN PLAY

Pattern enhancers are common items found in transport rooms or storage lockers aboard a ship. Once acquired, the **Pattern Enhancer** becomes a trait. You can determine if transporting is considered impossible without the pattern enhancer.



TELEFOCALS (OPPORTUNITY 1)

Telefocals are hi-tech binoculars that can be tuned to view thermal, visual, and higher frequency radiation, allowing limited use through solid material. While users gain more information about what they are looking at, their awareness of surroundings is reduced, making them more vulnerable to ambushes or missing information outside their field of view. Telefocals also have their own independent multispectral EM sensor, enabling high-resolution scans and analysis of whatever they had a visual lock on. They can also be connected to a standard tricorder via a short-range subspace link. Characters using telefocals gain the trait **Focused In** on what they can see through the multispectral eyepieces.



.:CHAPTER 4.2

SCANNING APPARATUS

"I'VE BEEN STUDYING MY TRICORDER OPERATIONS MANUAL."
- NEELIX

RODRIGO GONZALEZ TOLEDO

LIEUTENANT ZOE HERNANDEZ

If I had to choose one tool to take with me everywhere I go, I would choose my handy tricorder. With it, I can see the invisible, peer into the unsearchable, and comprehend the unfathomable. Whoever thought a handheld device could become such an essential component of our lives?

THERE ARE A NUMBER OF PORTABLE scanning devices in use across the Galaxy to gather and study data; this chapter details a few of the most well-known examples, starting with the **tricorder**.

THE TRICORDER

THE STANDARD TRICORDER CAN sense, compute, and communicate data, making it useful both on the ship and during missions away from the ship. The tricorder has many small scientific tools built into it, and extra parts can be added for specific missions. You can control it by touching buttons or, if needed, by speaking commands.

The tricorder is designed to be easy to carry and store. Overall, it is a highly versatile and essential tool for Starfleet crew members, allowing them to gather and analyze information efficiently during their missions. The design has varied over time. This description focuses on the tricorder of the 2300s.

The 24th century models have a strong outer case that folds in half. It has simple, sturdy buttons and a small screen for displaying information. This design choice was made to ensure it is easy to use in the field, even though more complex screens could offer more customization.

Inside, the tricorder has advanced electronics that manage sensor data, images, and multiple communication channels. Key components include:

- **COMMUNICATION AND DATA STORAGE:** The tricorder can send and receive voice and data messages using standard communicator frequencies, with a range like a communicator badge. It can also store a large amount of data using special crystals and chips. In an emergency, it can quickly send all its stored data to a starship in less than a second. Tricorders had their own logs, but they could also be used to make entries in personal or official records.
- **COMPUTER SYSTEM:** The tricorder's computer is divided into several parts, each managing different tasks like processing sensor data, routing information, and controlling power. It can run multiple functions at once, usually up to six scanning tasks.
- **POWER SOURCE:** A rechargeable crystal provides power for up to eighteen hours of use. The actual usage time depends on which parts of the tricorder are active, and this is always shown on the display.
- **SENSORS:** The tricorder has 235 sensors which can detect different types of signals. Some sensors are focused in one direction for precise measurements, while others can scan the entire area around the tricorder. There is also a handheld sensor for detailed readings.

OTHER TYPES OF SCANNERS

SIMILAR TO THE TRICORDER, STARFLEET AND OTHER spacefaring organizations employ devices specialized for particular tasks. Bio-scanners, particle scanners, sensor devices, and trident scanners used to repair power relays can take the form of an equipment trait, where the item's name is the name of the trait. An equipment trait allows the owner to attempt tasks and activities they would not usually be able to attempt or reduces the Difficulty of a task by 1. (See **Common Equipment**, page 238 of the core rulebook.)

Need help generating a reason why a tricorder is failing? Use the **Tricorder Complications** table to offer some technobabble-rich complications.

▷ THE RETINAL TRICORDER

The retinal tricorder of 32nd century Starfleet is a sophisticated, implantable device designed to enhance the capabilities of Starfleet officers while maintaining discretion. This advanced tricorder functions as a fully integrated scanning tool within the user's eye, allowing them to discreetly scan their environment and transmit data in real-time to their ship or allies. The device captures detailed information on objects, substances, and lifeforms, providing comprehensive analyses including biological, chemical, and environmental data. With its virtually invisible design, officers can perform scans without drawing attention, making it an invaluable tool in covert operations.

To operate the retinal tricorder, the user activates the device with a specific blink pattern or a subtle tap on the side of the head. By directing their gaze towards the target object or area, the implant initiates a scan and displays the results via a heads-up display (HUD) integrated with the user's natural vision. This real-time data is securely transmitted to the ship's main computer or handheld devices used by allies through encrypted subspace channels, ensuring sensitive information remains confidential. The HUD provides instant feedback and analysis, enabling officers to make informed decisions quickly.

The device includes a self-diagnostic mode capable of reporting anomalies to the user and the ship's medical officer. The implant also monitors the user's eye health and overall well-being, ensuring both the device and the user remain in optimal condition.

.: TRICORDER COMPLICATIONS

D20	TRICORDER COMPLICATION
1–2	Optronic relays fused.
3–4	Power cells mysteriously depleted.
5–6	Isodyne relay misinterpreting sensor data.
7–8	EM interference.
9–10	Atmospheric ionization.
11–12	Strange radiation.
13–14	Scanner head circuits slagged.
15–16	Jamming signal.
17–18	"Can't figure what's wrong with this damn thing!"
19–20	Tricorder becomes sentient and stubborn.

▷ WHAT CAN A TRICORDER DO, EXACTLY?

THE POWER OF PLOT

What is the range of a tricorder? What energies can it detect? What energies can it emit? Can it act a universal translator? Can it be used to hack a computer network or autopilot a ship? Can a tricorder do anything the players imagine?

The answer to all of the above questions: It depends. Over the decades, tricorders have achieved everything from detecting a cloaking frequency to being jury-rigged to explode like a time set mine and more. The point is this amazing device can do whatever the story—and creativity of the players—calls for. However, if the device starts becoming the magical all-in-one machine, you may choose to impose certain limitations on it.

This can be fulfilled with scene traits like **EM Interference**, **Jamming Signal**, **Thick Bedrock**, **Butter Fingers Dropped it Down a Crevice**, or **Atmospheric Ionization**. Also, you could spend Threat to make the devices malfunction (with a good technobabble explanation). In extreme cases, you can simply declare they are trying to do something impossible, like take down a Romulan warbird with a polaric pulse from a single tricorder.

▷ SCANNING DEVICES BEYOND STARFLEET

Non-Starfleet tricorder technology, as seen across various species in the Galaxy, often reflects the unique cultural and technological priorities of their creators.

- **Bajoran tricorders** are typically designed with a focus on scanning for biosigns or attuned to perform best during archaeological studies, reflecting Bajor's history of conflict and deep religious heritage.
- **Ferengi scanners** are especially effective for scanning through bulkheads to identify objects of potential profit.
- **Jem'Hadar tricorders** are built for warfare efficiency, prioritizing ruggedness and quick tactical analysis over versatility. These devices are optimized for battlefield conditions, with robust features for identifying enemy positions and assessing environmental hazards.
- **Klingon tricorders** emphasize combat utility, featuring robust construction and powerful sensors for detecting life forms and cloaked objects, aligning with their warrior ethos.
- **Romulan tricorders** are advanced and discreet, often incorporating stealth technologies to avoid detection, reflecting their secretive and strategic nature. They are also especially effective when searching for trilithium.
- **Trill medical tricorders** are highly specialized, equipped with sensors to monitor and support the symbiotic relationships between Trill hosts and their symbionts.
- **Vulcan tricorders** (also known as scanners), are known for their precision and logical design, often feature advanced computational capabilities and long-range scanning functions, making them ideal for scientific exploration and analysis.

These various tricorders, while sharing core functionalities with Starfleet's, often exceed or fall short in specific areas based on the distinct needs and technological philosophies of their respective cultures. A trait can be assumed when using any of the devices, which may make increase or decrease the Difficulty of a task in particular situations.

.:CHAPTER 4.3

AWAY TEAMS IN ACTION

"HAD THE MISSION GONE ACCORDING TO PLAN, ADMIRAL, THE INDIGENOUS SPECIES WOULD NEVER HAVE BEEN AWARE OF OUR INTERFERENCE."

- KELVIN TIMELINE SPOCK

SENSOR SYSTEMS

SENSORS ARE DEVICES USED TO observe the environment around a person or group of persons. They can be simple, like a manual camera or light sensor, or complex, like the many devices that scan different aspects of matter and energy in subspace, space, time, and stars. These sensors help gather information about everything in the universe, from the smallest particles to the largest celestial bodies.

.: A SENSOR FOR ALMOST EVERYTHING

Sensors are an amazing invention capable of solving a wide array of problems. When humanoid senses are not enough, advanced sensors can see the invisible, perceive the imperceptible, and unveil the undiscoverable. That is, of course, until they can't.

You may try to keep certain facts hidden throughout a game, constructing an adventure where player characters systematically uncover clues to solve the greater problem. If one sweep of the tricorder immediately provided all the answers, many missions would end abruptly, much to the disappointment of many players.

Sensors are a finicky batch of transistors, diodes, and relays providing just enough information to keep characters moving along at the speed of plot. For each mystery or problem gamemasters concoct, they should be prepared to create traits to prevent the story from being unravelled too quickly.

You should not feel ashamed to withhold some information that would be a premature reveal—though you should be ready to provide a logical explanation as to why the characters' sensor scans failed to provide additional information. Likewise, a sensor sweep managing to reveal a cloaked building in one adventure might fail the same task in the next.

Coming up with plausible reasons for the inconsistency is a common *Star Trek* trope ranging from damaged equipment or new technology designed to confound even standard Starfleet issue tricorders.

Also, allow players to come up with new and ingenious ways to use sensors. If the idea is outlandish, you may increase the Difficulty level or declare it impossible. However, if they can provide a Treknobabble explanation that sounds feasible, let them attempt the task. It will make them feel like a true genius if they succeed.

Do you need a Treknobabble reason for what **internal** issue is causing sensors to fail in a scene? Use the following tables to pop out some plausible sounding pseudo-science to confound your player characters.

LIEUTENANT ZOE HERNANDEZ

Carl Sagan once said, "Telescopes are time machines." During away missions, a good, reliable sensor system—be it a spectrometer or a tricorder—helps us comprehend the inner workings and resplendent design of our universe. The mysteries of the cosmos are revealed with the use of sensor technology.

RODRIGO GONZALEZ TOLEDO

.:REASONS WHY SENSOR SCANS MIGHT FAIL - EXTERNAL ISSUES

D20	EXTERNAL SENSORS COMPLICATION
1	Time-space distortion interrupting scans.
2	Rogue object emitting sensor-blinding levels of gamma radiation.
3	Gravitational eddies abundant in this area.
4	Highly-ionizied hydrogen gas infiltrating sensor systems.
5	Local hidden base broadcasting sensor-disrupting radio waves.
6	Sentient nanoparticles take over sensor system to transmit message.
7	Sensor knocked slightly out-of-phase with reality.
8	Storm blocking effective sensor scans.
9	Energy fields prevent scanning.
10	Solar flare disrupts all scanning.
11	Mini-wormhole emitting tachyon waves.
12	Tetryon particles from extinct civilization's malfunctioning equipment.
13	Radiation storm sweeping over local planet.
14	Hyper-magnetized weapon interference.
15	EM burst from unknown source.
16	Enemies waiting in ambush disrupting sensor sweeps.
17	Local creature's mating call.
18	Extradimensional power source.
19	Subspace interference caused by crashed ship.
20	Microscopic triphasic entity birthing metaphasic offspring attracted to sensor scanning equipment.

.:REASONS WHY SENSOR SCANS MIGHT FAIL - INTERNAL ISSUES

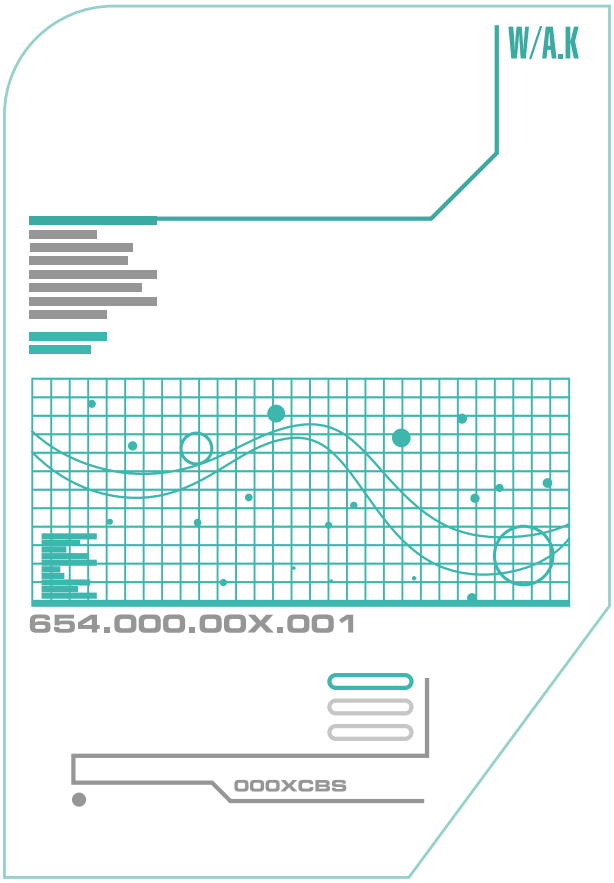
D20	INTERNAL SENSORS COMPLICATION
1	Multilateral sensor array nonresponsive to computer commands.
2	Wide-angle active EM scanner misinterpreting sensor data.
3	Narrow-angle active EM scanner offline.
4	Gamma ray batteries exploded disrupting entire device.
5	Variable frequency EM flux sensor can't parse background galactic radiation.
6	Lifeform analysis instrument cluster overloading sensor array with data on local flora and/or fauna.
7	Parametric subspace field stress sensor offline.
8	Gravimetric distortion scanner unable to compensate for time-space gradients.
9	Passive neutrino imagining scanner inundated with cosmic particles.
10	Thermal imaging array rebooting.
11	Passive subspace multibeacon receiver replaying previous year's messages over and over.
12	Stellar graviton detectors misinterpreting incoming data as an incoming horder of Borg (or some other scary species).
13	High-energy charged particle detectors totally fractured.
14	Federation timebase beacon receiver not calibrated; internal chronometer malfunctioning.
15	Sensor input processing algorithms linking with other equipment.
16	Linear calibration subspace flux sensor not fluxing.
17	Sensor relays lost all power.
18	Ambient radiation field distorting all sensor readings
19	Recent maintenance from low-ranking technicians damaged sensor relays.
20	All queries return the number 47.

Use the **Away Team Encounters** table to introduce some neat encounters to make this away team mission a distinctive event.

▷ HOW FAR CAN SENSORS REACH?

In the television show and movies, sensors can scan as far as the plot requires. There is no need to pull out a calculator every time a character wants to scan something. You can determine beforehand what objects are in sensor range and the detail such scans provide.

For example, if the away team is on a planet, they should be able to detect large cities or high power energy discharges from long range. However, trying to identify a specific ship in orbit of the planet or scan for dilithium in a mountain range might require the away team to be in closer proximity. Furthermore, trying to locate a specific person or object on a planet might require the away team to be a few blocks away from their target. Some detailed scans require close proximity to the target being scanned.



.: AWAY TEAM ENCOUNTERS

D20	AWAY TEAM ENCOUNTER
1	An ancient alien artifact emits strange, calming music when approached.
2	A swarm of chittering insects harmlessly surrounds the team.
3	The team encounters sentient plants communicating through subtle color changes and chemical signals.
4	A local villager offers a strange, unfamiliar fruit as a gift of goodwill.
5	A malfunctioning environmental control system generates holographic wildlife.
6	An alien artist asks the away team to critique a sculpture made from local materials.
7	The team stumbles upon a ceremonial procession honoring the planet's seasonal cycle.
8	A holographic guide appears, offering a historical tour of long-abandoned ruins.
9	A local trader offers the team intricate hand-carved tools as part of a cultural exchange.
10	A flock of curious, harmless avian creatures mimics the away team's vocal tones.
11	An indigenous species plays a strategic board game and invites the away team to join.
12	The team finds a fossilized jaw with enormous teeth embedded in the rock.
13	An alien species proudly shows off their uniquely designed furniture.
14	A local scholar approaches the team, eager to learn about their technological advancements.
15	A local, wheeled ground vehicle mysteriously activates.
16	The away team discovers a serene, alien meditation garden with ancient inscriptions.
17	A group of children invites the away team to join a simple, playful game.
18	A massive herd of herbivorous creatures slowly migrates across the team's path.
19	The team encounters a mysterious, stationary object broadcasting peaceful, repeating signals.
20	All translations are in childlike gibberish.

Use the **Away Team Complications** table to introduce some perturbing complications to your away team mission.

.: AWAY TEAM COMPLICATIONS

D20	AWAY TEAM COMPLICATION
1	Local leaders request to speak with someone in charge, bypassing the away team's designated commanding officer.
2	Diplomatic protocols are misunderstood, risking an unintended cultural offense during a peaceful negotiation.
3	A planetary government unexpectedly denies the away team further access to vital locations.
4	The commanding officer receives conflicting mission orders from Starfleet and the local authorities.
5	Sudden atmospheric turbulence forces the shuttlecraft to land far from the planned location; or the transport site misses the predetermined landing spot.
6	A planetary weather system shifts rapidly, making it difficult to navigate safely across the terrain.
7	The shuttle's navigation systems become unreliable due to planetary anomalies, making it hard to return to orbit.
8	Unidentified life-forms surround the away team, curious but territorial, with unknown intentions.
9	A local security force begins shadowing the away team, treating them as potential threats.
10	A critical piece of equipment goes missing, raising suspicion of theft or tampering.
11	A previously undetected allergen in the local atmosphere causes a team member to fall ill.
12	A crewmember begins exhibiting unusual symptoms after eating local food, and the cause is unknown.
13	An alien plant releases spores that temporarily impair the team's motor functions.
14	Unexplained geological activity causes sudden shifts in the landscape, requiring urgent investigation.
15	A previously unknown chemical compound in the soil reacts with Starfleet equipment, rendering some tools unusable.
16	A rare celestial event alters the environment's gravitational or atmospheric properties, complicating the mission.
17	The transporter buffer malfunctions, leaving essential equipment behind on the ship.
18	An unexpected power drain depletes the team's equipment, limiting communications and scanning abilities.
19	A vital piece of machinery on the surface fails, and improvised repairs must be made with limited resources.
20	A planetary anomaly suddenly accelerates the growth of local flora, rapidly altering the environment and trapping the team.

.:CHAPTER 4.4

NON-FEDERATION SCIENCE

"OUR 'THINK TANK' IS NEARBY. A MODEST VESSEL. I HAVE COME TO OFFER OUR HELP WITH YOUR HAZARI PARADOX."

- KURROS

OTHER SPECIES, ENTITIES, AND CIVILIzations have made advancements in various sciences the Federation has yet to venture into. In some cases, Federation law strictly prohibits research into certain areas, such as genetic augmentation or weapons of mass destruction. (Or this research is off the books, at least.)

Let's delve into some of the mind-boggling science that exists in the *Star Trek* universe. Player characters might find ways to incorporate such scientific concepts into their stories.

.: THE BORG COLLECTIVE

Borg technology is among the most advanced and terrifying in the Milky Way Galaxy, aimed at assimilating all technology to achieve perfection. Using nanotechnology, the Borg modify victims' genetic structures, integrating biology with technology to create drones linked to a hive mind. Assimilation methods include viral sequencers and cybernetic augmentations; defenses against assimilation include omicron particle exposure and neural suppressants. In extreme cases, euthanization is used to prevent assimilation.

Interlink nodes in Borg drones enable telepathic-like communication, sharing experiences even after separation from the Collective. Interplexing beacons, more powerful subspace transmitters, allow long-distance and temporal communication. The Borg use maturation chambers to accelerate the development of captured adolescents into drones. They also utilize **transwarp** technology, with transwarp coils and conduits enabling travel and communication across vast distances. Transwarp hubs connect numerous points throughout the Galaxy, enhancing the Borg's reach and efficiency.

.: CARDASSIANS

The Cardassian Union, particularly through the Obsidian Order, excels in espionage and covert operations. Mastery of genetic engineering and surgical alteration enables agents to infiltrate seamlessly. Their advanced torturing techniques and devices ensure effective interrogation, while memory wiping and implantation technology allow for precise control over information.

.: THE DOMINION

The Dominion employs a range of advanced and formidable technologies. Central to their technological prowess are the Jem'Hadar soldiers and Vorta administrators, both genetically engineered for loyalty and effectiveness. The Jem'Hadar are reliant on the drug Ketracel-white, a method of control ensuring their obedience. The Vorta, skilled in diplomacy and intelligence, have cloning technology to ensure their continuity.

COMMODORE NELLA XEN

As much as the Federation take pride in our accomplishments, we are often humbled—and sometimes terrified—by the advances other civilizations have made in various scientific ventures.

RODRIGO GONZALEZ TOLEDO

Dominion starships, notably the battlecruisers and attack ships, are equipped with polaron beam weapons capable of penetrating most shield technologies, making them highly effective in combat. They also utilize advanced cloaking devices, allowing their ships to remain undetected.

.:ILLYRIANS

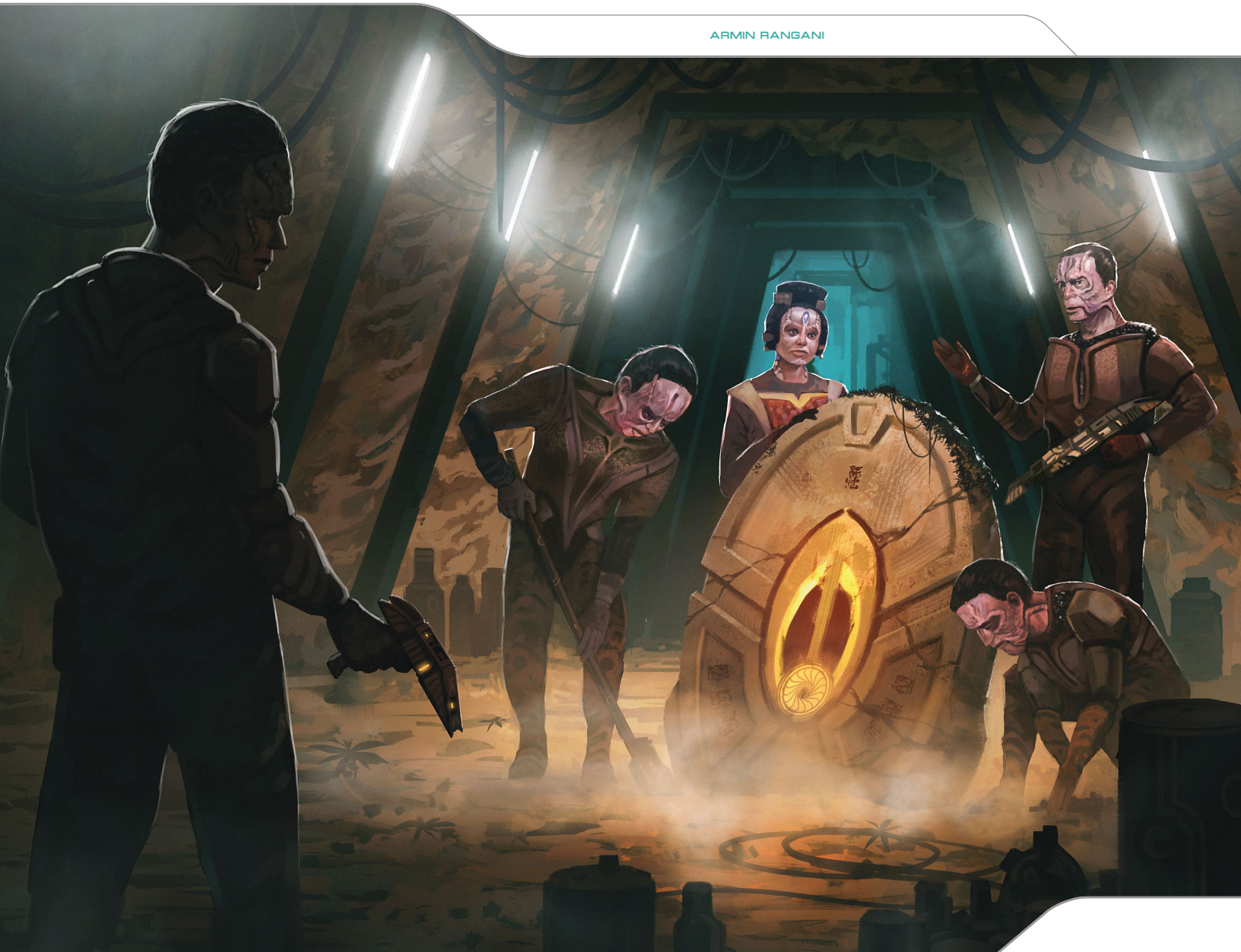
Illyrians are renowned for their sophisticated genetic engineering technology, allowing them to enhance physical and mental abilities. They use advanced techniques to alter their DNA, adapting to various environments and improving resilience. This genetic modification is integral to their culture, enabling them to thrive in diverse conditions. However, their technological prowess in this area often leads to tensions with other species, who view such alterations with suspicion and ethical concerns.

.:KLINGONS

Klingon time crystals, known as **poH qut** in their language, are rare and mystical artifacts with the ability to manipulate time. Found in the Boreth Monastery, these crystals allow for glimpses into the future or past and can even enable time travel. The use of time crystals involves significant risks and potential consequences, making them both powerful and dangerous within the Klingon culture.

.:SIKARIANS

The Sikarians possess remarkable **spatial trajector** technology, enabling near-instantaneous transportation over 40,000 light-years. This advanced device folds space, allowing for long-distance travel far beyond conventional warp capabilities.



ARMIN RANGANI

▷ CAN I JUST TAKE OTHER PEOPLE'S STUFF?

ETHICS AROUND COLLECTING TECHNOLOGY

The Prime Directive is in place to make sure cultural contamination is avoided at all costs. A stray piece of technology left on a pre-warp or non-aligned world can lead to catastrophe. In like manner, any technology taken from another polity or species could cause problems. As tempting as it may be to steal or "borrow" Illyrian genetic modification technology, a Sikarian spatial trajector, or a Romulan cloaking device, Starfleet regulations prohibit such actions.

True, desperate times calls for desperate measures. But any character or crew deciding to violate regulations to obtain a technological breakthrough could be subject to disciplinary action from Starfleet or retribution from a vengeful opponent. Starfleet has a well-defined process for technological integration and officers would be wise to check in with Starfleet Command before utilizing another person's or species' scientific advancements or equipment.

.:PERSONAL LOG

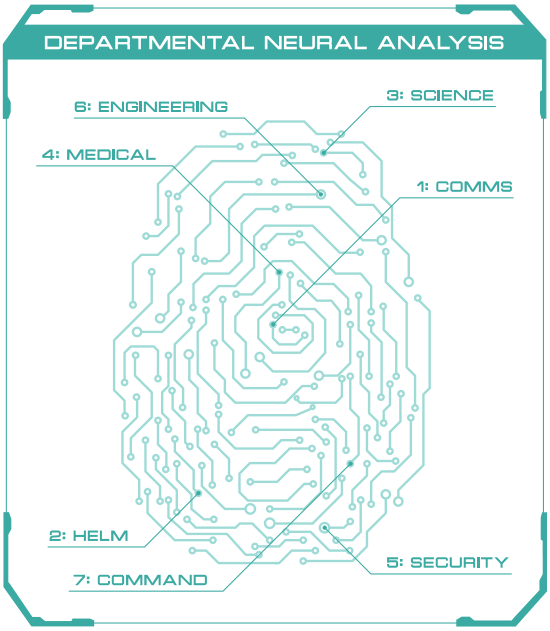
LIEUTENANT ZOE HERNANDEZ

This is so exciting!

First contact is why I joined Starfleet. The promise of meeting all manner of species and civilizations is a heck of a recruiting campaign. I've seen people at their worst. I've seen us at our worst, but first contact offers a chance to show us at our best.

The preliminary sensor readings from the planet are already very promising. Atmospheric conditions indicate almost no pollution and mild climate, and there are millions of square kilometers of vibrant green spaces as well as healthy oceans. Is this a natural consequence, or was this society once like humanity and so many others? Were they able to realize the error of their ways and take the necessary corrective action to ensure future security and prosperity? How different are they from us? How similar are they to us? What can we learn from them?

I can't wait to find out.



CHAPTER 5

MEDICAL TECHNOLOGY

5.1	MEDICAL DEVICES	70
5.2	MEDICAL TREATMENTS	74
5.3	MEDICAL ENHANCEMENTS	76

LOUIE MARYON

.:CHAPTER 5.1

MEDICAL DEVICES

"WELCOME TO SICKBAY. TAKE A NUMBER."
- EMERGENCY MEDICAL HOLOGRAM

RODRIGO GONZALEZ TOLEDO

DOCTOR VORAAL

As a medical professional, you are not only expected to be knowledgeable about the infinite diversity of physiologies in the Galaxy, but also required to keep up to date with the advances in medical technology. This includes being able to use both larger equipment located in a sickbay, but also the smaller tools necessary to save your patient. Both types of equipment are covered in detail in this chapter, as are some of the prosthetics and technologies that help patients recover from particularly debilitating injuries and diseases.

MEDICAL TECHNOLOGY AND ITS ADvancement is a core concept embraced by all members of the United Federation of Planets, along with most space-faring polities. With science as the driving force, medicine and its applications help protect the citizens of the Galaxy and help to ensure long, robust lives without the fear of illness or injury cutting them short.

It stands to reason all species develop some form of medical facility for the treatment of pathogens and injuries. While the ends are almost always the same, many species have resorted to different means for their treatments of patients. From botanical rubs and mineral baths to genetically engineered retroviruses, the number of ways a physician can treat those that visit them is vast and only limited to the influence of its species' culture and ethics.

As the scientific understanding of the universe grows, so too does the precision and effect of medical treatments and procedures. Because of this, physicians must always stay up to date on new procedures and technologies being introduced to the profession and must try to keep an open mind when treatments they are not familiar with are presented.

In some extreme cases, doctors on ships, stations, and outposts may need to create their own treatment program based on observations they've made and on the data they collected. This is typically true when new viruses or bacteria of unfamiliar origin begin to spread. In these situations, a physician's ingenuity is every bit as valuable as that of an engineer.

Treatments a doctor implements are typically divided into two categories: **biological** and **technological**. Biological treatments involve the use of a patient's anatomy or genetics, whereas technological treatments typically use mechanical implementations controlled by a computer system.

SICKBAYS AND INFIRMARIES

PERHAPS THE MOST IMPORTANT AREA ON SHIPS, stations, and outposts, **sickbays** (also known as medlabs or infirmaries) are where people are treated for illness and injury. Providing crew members and citizens with a safe place to recover and the peace of mind they'll receive treatment and care during times of need, the technologies of sickbays are just as important as those that protect a starship.

.: BIOBED

The earliest versions of biobeds were basic diagnostic tables with viewscreens that presented basic medical data of the patient such as blood pressure, heart rate, and brain activity. These early biobeds also introduced surgical frames that allowed for the attachment of different tools, medicines, and anaesthetics a doctor could access as needed.

As technology advanced, biobeds included embedded scanner technology capable of producing full scans of a patient's brain, skeletal structure, arterial networks, and organs. These scanners were usually part of an enclosure attached to the bed and rested over the patient as it scanned. A display in the top of the enclosure projected real-time data based on the scans completed alongside the patient's vitals. These biobeds were eventually equipped with force field generators to protect both patients and the medical teams from potential biological hazards.

As needs changed throughout the centuries, the basic biobed technology has also been adapted to such technologies as stasis chambers and hypo- and hyperbaric chambers, each of which used completely enclosed biobeds to service a patient for different reasons. Stasis chambers were used to suspend some life functions to allow healing to occur or while researching a cure. Hypo- and hyperbaric chambers were used to adjust the pressure around a patient in order for their physiologies to recalibrate to pressures they were used to or to aid in the speed of specific medical procedures.

Use the **Biobed Complications** table when you need to create a complication during a scene.

.: BIOBED COMPLICATIONS

D20	BIOBED COMPLICATION
1–2	Inaccurate sensor readouts
3–4	Patient paralysis
5–6	Increased heart rate in patient
7–8	Bioelectrical feedback
9–10	Containment field failure
11–12	Induced patient phase shift
13–14	Cloaked patient
15–16	Patient's DNA rewritten
17–18	Radiation burns
19–20	Patient's blood starts to vaporize

TOOLS OF THE MEDICAL TRADE

ALL MEDICAL PROFESSIONALS GO THROUGH YEARS of training to hone their craft. Because of this, doctors, surgeons, and nurses are all respected for their steady hands, calm demeanor, and (usually) welcoming bedside manner. While most medical instruments are usable by those with basic medical training, the efficacy of the devices compound when in the hands of an expert.

.: AUTOSUTURE

Used for closing deep lacerations, the autosuture uses a thin laser to stimulate a patient's anabolism to begin molecular growth and seals the wound immediately. Autosutures are typically used over dermal regenerators for deep wounds with many layers to seal up, and, with their variable laser widths, are a much more precise tool as well.

.: CORTICAL INHIBITOR

Used to block communication between the outer cerebrum and the rest of the brain, cortical inhibitors manage the theta wave activity in a patient's brain. Typically used to stop a patient from dreaming, cortical inhibitors can be attached to the skin and controlled remotely. There is some evidence that cortical inhibitors can also help with the emergence of different personalities by stimulating the neural transmitters within the cerebrum.

.: CORTICAL STIMULATOR

Cortical stimulators are used to revive neural pathways that have otherwise gone dormant dues to stress or neural shock. Using controlled bursts of electricity, cortical stimulators replace the bioelectrical connections among neurons, allowing a brain to continue functioning when the damage done to it would typically prevent this communication. Cortical stimulators are typically affixed to a patient's temple or the front of their forehead.

.: CYTOPLASMIC STIMULATOR

When a patient's cells are unable to go through osmosis to maintain equilibrium, toxins can build up, preventing the cells from doing what they're supposed to do and eventually killing them. The cytoplasmic stimulator was created to help decrease cellular toxicity by encouraging the cells to rapidly create new, unaffected cytoplasm. In most cases, this process can force the toxins out of the cells and into the bloodstream where it can be managed more easily.

.: DERMAL STIMULATOR

Using ultrasonic waves to increase the flexibility of skin cells, dermal stimulators make a patient's skin pliable and stretchy. While several medical uses for the tool exist, it is most commonly used for cosmetic procedures, allowing patients to manipulate their looks as needed.

.: DETRONAL SCANNER

Providing a more precise scan than a typical medical tricorder, detronal scanners are specifically used to read and map the DNA in a specific area of living tissue. By using electron resonance imaging, these scanners create a three-dimensional model in real time that shows both the structure of the DNA molecule and any changes that might be occurring within it.

.: MEDICAL TRICORDER

Similar in size to a standard issue tricorder, medical tricorders differ in that they contain a hand-held scanner capable of producing real-time images of a patient's organs. Additionally, the tricorder's internal scanners collect standard vital information such as blood pressure, heart rate, and even brain wave analysis. Medical tricorders even contain receptacles in which vials can be inserted for more direct analysis of both blood and tissue samples. The device can also analyze the molecular makeup and potency of different toxins, viruses, and bacteria.

Use the **Medical Tricorder Complications** table whenever you need to create a random complication involving a medical tricorder.

.:MEDICAL TRICORDER COMPLICATIONS

D20	MEDICAL TRICORDER COMPLICATION
1–2	Unable to detect vital signs
3–4	Displays false readings
5–6	Synapses overload in patient causing a Stun 3 Intense, Piercing attack on them
7–8	Unzips patient's DNA
9–10	Removes one of the patient's senses
11–12	User swaps vital signs with patient
13–14	Tricorder explodes with a Stun 3 Area attack
15–16	Induces amnesia on patient
17–18	Coagulates patient's blood
19–20	Tricorder becomes a pattern scrambler

.:MEDICAL SHOTGUN

Also known as the transdermal therapeutic projector, the medical shotgun was created in response to numerous medical emergencies. Only used when emergencies such as patient escape or escalated adrenaline rampages, a trained user can deliver treatment to a patient from a safe distance. The shotgun fires dissolving capsules filled with different medicines coming in both slug form for individual patients and shot form for delivery to a larger group.

Medical shotguns are weapons whose profile differs based on the liquid loaded into the cartridge being fired. When shooting a medical shotgun, choose the injury type that makes sense for the cartridge. If the injury type is **Harmless**, the medicine in the cartridge is delivered and takes effect, but no injury trait is applied to the defender.

MEDICAL SHOTGUN: Ranged, Harmless/Stun/Deadly 3, Size 2H, Cumbersome

.:NEURAL CALIPERS

Neural calipers are designed to cause patients to lose consciousness before surgery. Activated remotely, this device works by turning off the reticular activating system in the patient's brain stem until it is deactivated.

.:NEURAL STIMULATOR

Neural stimulators are designed to encourage a patient's brain cells to operate normally even when damaged or stressed. Typically worn around a patient's head, neural stimulators use electrical pulses that are directed at specific brain regions that aren't functioning normally. These pulses simulate the bioelectrical signals typically transferred among healthy brain cells and encourage the patient's synapses to begin firing their own signals again. The device can even be used to allow people in comas to act normally for short periods of time if necessary.

.:NEURAL TRANSDUCER

Neural transducers were created to allow individuals to use non-functional limbs due to nerve atrophy or neural disconnect. The transducer receives the electrical signal for motion and stimulates the muscles around the non-functional limb to expand and contract in the same way as if they have received a direct message from the brain.

.:OSTEOGENIC STIMULATOR

Osteogenic stimulators are used to increase the rate of repair in broken bones. Effective for hairline and spiral fractures, osteogenic stimulators use a combination of ultraviolet light and ultrasonic compression waves to encourage rapid reproduction of bone-mending stem cells. More serious compound fractures cannot be treated with the device.

.:SONIC SEPARATOR

Used in complex brain surgery, sonic separators employ sonic waves to determine nerve and neuron resonance. Using the cellular resonance, a surgeon can identify which nerves and neurons need to be connected together to ensure standard brain functionality in the patient.

.:VASCULAR REGENERATOR

Vascular regenerators are used for controlling blood loss in open wounds. Encouraging both arterial and vein cell reproduction in a similar fashion to a dermal regenerator, these devices have pinpoint accuracy and can both seal off bleeding veins and arteries and connect them together when they've been severed.

.:CHAPTER 5.2

MEDICAL TREATMENTS

"MY GOD. WHAT IS THIS? THE DARK AGES?"

- DR. LEONARD MCCOY

DOCTOR VORAAL

Everyone in the Galaxy has a right to medicine and other treatments you provide. As such, you will need to familiarize yourself with the different species that will come through the sickbay and be mindful of their cultural sensitivities when it comes to treatment. Additionally, some species' physiologies may require you to stock up on specific treatments you may not have on hand in a standard infirmary. This subchapter goes into detail about the types of tools, medicines, and equipment you will likely have on hand to treat the wide array of patients you will interact with.

RODRIGO GONZALEZ TOLEDO

THE NUMBER OF REASONS PATIENTS need treatment is as infinite as the diversity among them. Each injury, infection, or impairment requires physicians to investigate the effect on the patient and to provide a specific treatment. Treatments can be anything from bed rest to a complex regiment of drugs, and the length of time for each varies based on the intensity of the ailment being treated.

While some drugs and other treatments have been created in lab settings and are able to be created in a replicator, many other treatments have biological elements that most replicators struggle to assemble.

DRUGS AND TREATMENTS

AMONG THE THOUSANDS OF DRUGS available to physicians, many are commonly used as simple treatments such as pain relief and fighting off infections. For more intense treatments, rarer drugs can be found in sickbay. Many of these drugs can be administered via injection using a hypospray while others need to be ingested, absorbed, or inhaled to take effect. Review the **Drugs and Treatment Table** for a sampling of drugs, their usage, and delivery method.

.:DRUGS AND TREATMENTS TABLE

DRUG	USE	DELIVERY METHOD
Alkysine	Neural damage	Injection
Anetrizine	Local anesthetic	Transdermal
Arithrazine	Theta radiation poisoning	Ingestion
Asinolyathin	Muscle relaxer, pain reliever	Injection
Benzodiazepine	Sedative	Injection
Cordrazine	Stimulant	Injection
Corophizine	Antibiotic	Injection
Cortolin	Respiratory failure	Injection
Dermaline	Simple burn relief	Injection/transdermal
Hydrocortilene	Simple pain relief	Injection
Hyronalin	Non-theta radiation poisoning	Injection/inhaled
Lectrazine	Stabilizes cardiovascular and renal systems	Injection
Neurazine	Sedative and anesthetic	Inhaled

▷ TRANSPORTERS AS TREATMENT

Since the invention of the transporter many beneficial practices have stemmed from using all aspects of transporter technology, including, but not limited to:

- **BIOFILTERS:** One of the most effective uses of transporters is ensuring that when people travel back from new locations, they don't bring foreign pathogens with them. When conducting the scan of a person, the transporter biofilters locate foreign contaminants and make sure they aren't included in the rematerializing process. This process could also be used to filter out waste from a person's intestines and other waste-producing organs.
- **BIRTH ASSISTANCE:** In instances when having a baby naturally would put a patient's life at risk, medical transporters can transport the child out of its parent's womb and into an incubator monitoring station, or, in extreme cases, a surrogate. A similar process is used for the removal of symbiotes and parasites.
- **FOREIGN OBJECT REMOVAL:** From the smallest of splinters to large-scale impalement, the transporter can be used to target the object that has punctured the patient and lodged itself into their body. This usually requires a physician on standby to cauterize the wound and stimulate blood vessel growth.
- **GENETIC SEPARATION:** In rare instances where multiple patients' DNA becomes fused due to an accident, the transporter has been used to detect radioisotopes within the target as means of separating their DNA and returning them to their unfused selves. While the ethics of this procedure will be discussed in the medical field for centuries to come, the process is highly effective in restoring the patients to who they were, even though the new entity is destroyed in the process.
- **INOCULATION:** The transporter system can be used to add molecular structures to people being reconstructed. This is a powerful tool used for protecting crew members from viruses and other diseases without a trip to sickbay. Unfortunately, the technique can also be used to inject rogue DNA into those using the transporter, such as how the Borg used them in the early 25th century to evolve their assimilation tactics.
- **MEDICINE AT A DISTANCE:** Though extremely difficult to pull off, some medications can be transported directly into a patient's body. This procedure became much more commonplace with the introduction of medical transporters in the 23rd century.
- **PATTERN BUFFER STASIS:** Physicians have used the transporter's pattern buffer to effectively store a terminal patient in stasis until a treatment or cure could be created or prepared. Long-duration stasis could result in lethal pattern degradation.

▷ THE EFFICACY OF HOLOGRAMS IN MEDICINE

As hologram technology improved throughout the years, so too did the medical applications of hard light constructs. The rate of holographic medical advancement reached a crescendo in the 25th century and slowed down with the onset of programmable matter in later centuries. The medical application of holograms includes, but is not limited to:

- **EMERGENCY MEDICAL HOLOGRAM:** Designed specifically with medicine in mind, emergency medical holograms are meant to be a last resort for emergencies where a ship's medical crew is unable to function due to sickness, injury, or death.
- **HOLOGRAPHIC ORGANS**: In the case of organ loss, holograms can be used to replicate the effects of missing hearts, lungs, or even skin. While the earliest implementation of this treatment required a patient to remain completely motionless, refinement of the technology improved as nano-holoemitters embedded within a patient allowed them to shift with the patient's motion.
- **POINT OF VIEW ASSESSMENT AND TREATMENT**: With the proper scans of a patient, physicians are able to input the data and vitals into a holodeck simulation, allowing them to move around and observe the patient from within.

.:CHAPTER 5.3

MEDICAL ENHANCEMENTS

"THE VISOR OR BEING BLIND? NO, SINCE THEY'RE BOTH A PART OF ME AND I REALLY LIKE WHO I AM, THERE'S NO REASON FOR ME TO RESENT EITHER ONE."

- GEORDI LAFORGE

DOCTOR VORAAL

There will be times when the prescription of basic medication and rehabilitation cannot help a patient on their own. Such is the case when a patient has suffered a loss of an appendage or organ. Because of this, you may be put into the position of needing to create or install some type of enhancement for your patient. While these procedures are best done by professionals at hospitals, when in space, the nearest hospital might be days away. Therefore, it falls onto you to make the quick decision to improve your patient's life.

RODRIGO GONZALEZ TOLEDO

SINCE THE DAWN OF MODERN MEDICINE, the need for physiological assistance has been at the forefront of the profession. From missing limbs to tissue and organ damage, physicians have done everything in their power to ensure patients can progress through their lives with enhancements that function as well as the things they replace.

.:WHEELCHAIRS

Every sickbay and infirmary on ships and stations have standard wheelchairs to be used depending on a patient's needs. Because standard wheelchairs don't require a power source, they are ideal for transporting patients during emergencies and are almost always used when hallways are too narrow for bulkier support chairs.

Most wheelchairs can be operated by the patient riding within or by someone pushing them while others are designed to be controlled remotely using toggle joysticks or even neural communication. The chair's wheels can also be upgraded to wider, softer tires that make traversing terrain such as sand and rocks far easier than standard narrow tires.

.:SUPPORT CHAIRS

Support chairs come in many shapes and sizes depending on the patient's needs. From smaller, versatile chairs controlled by neural impulses alone, to complex chairs with built-in life support systems, support chairs typically have modular assemblies for the ease of adding additional support technologies as needed.

Support chairs require massive amounts of power to operate and their power cells are typically mounted above the gyros that control the direction the chair is moving. The top of this housing is typically where the chair's gelfoam seat is mounted. From there, medical devices can be mounted to either side of the patient, or even contained within a compartment mounted to the front of the chair. Even though most of these chairs can turn easily, the designs are generally bulky and cumbersome for moving through the confines of a starship.

.:HOVER CHAIRS

Designed for low friction transportation, and based on the technology introduced for antigravity sleds, hover chairs replace wheels with antigravity technology that allows the user to glide above a surface. Providing the benefit of amazing maneuverability and a sleek frame that can fit in some of the tightest places on a starship, hoverchairs are limited only to the direction their anti-gravitational fields project and the height above a surface they can hover.

While small, simple medical instruments can be attached to or embedded within the chair, the antigravity generators take up a majority of the chair's structure. The chair's frame contains the power cells arranged in a single layer, providing the energy the generators need to defy gravity.

GENETIC ENGINEERING

GENE THERAPY IS OFTEN A PROCESS UNLOCKED before a species attempts to travel through interstellar space. Throughout the centuries, many organizations have embraced some forms of gene therapy to remove genetic defects that would otherwise hinder or, in some cases, kill a patient. This process, when implemented ethically, can effectively remove all genetic diseases and produce inoculation against both viral and bacterial pathogens. Genetic engineering has also been used to repair damaged organs and tissue by stimulating growth in the patient or being grown physically in a lab.

Many species use genetic manipulation to enhance their facial features and general body appearance, while others use the process to clone animals, and, in some cases, each other. While the United Federation of Planets encourages embracing identity and don't have any laws about modifying your own body within the species norm, in most cases, cloning is prohibited by law.

.: GENETRONIC REPLICATORS

A generator developed by Dr. Toby Russell, this device uses DNA samples to grow a new organ or bone for a patient. The device utilizes genetic scans to transmit a set of detailed instructions to a modified replicator and produces the replacement in a similar way to how a normal replicator would produce food.

.: ENHANCEMENT VS. AUGMENT

Enhancing people to the normal standards of their species has typically been considered an ethical use of genetic technology. However, some individuals have envisioned a future where their species utilizes gene therapy to enhance its people beyond the standard of their physiology. This unethical use of augmenting others led to the Eugenics Wars on Earth, and even sent the Klingon Empire to the brink of civil war when they were exposed to a virus that augmented their natural abilities.

The Klingon Empire used genetic engineering to physically alter their bodies to look like others. This process, known as **choH'a'**, layered other species' DNA on top of the Klingon's, masking the warrior's traits and making them appear almost as identical as the species they were infiltrating. The process fused the DNA in such a way that scans were unable to detect the Klingon hidden within the genetic code of their overlay.

Beyond the ethical questions of augmenting people using genetic engineering comes the questionable tactics of creating an entire new genome, resulting in an entirely new species. Such was the case of the Dominion creating the bioengineered warriors known as the **Jem'Hadar**. Complete with a weakness that would forever enslave them to the Dominion, the Jem'Hadar were a form of super soldier that rivalled even the **Augments** of prior centuries.

CYBERNETICS

FROM THE EARLY YEARS OF PROSTHETICS, MEDICAL science has constantly researched ways to connect the Human mind to parts of their body that were non-functional. Starting with wires connecting the patient's brain to the part they needed to control, rapid advancements in the field manifested in almost full body integration of existant technology. Combined with artificial intelligence models, cybernetic enhancements became the go-to medical treatment for people suffering traumatic body damage and those born with genetic imperfections.

Some species valued the use of cybernetic enhancement to such a degree it became a core belief of their culture. The **Bynars** for example, replace their parietal lobes altogether at birth with computing processors. The **Borg** value cybernetics so much that they install dozens of implants on and in the subjects they assimilate.

Cybernetic enhancements continue to advance into the 25th century and onward with increasing rapidity. The use of reverse-engineered Borg nanites allow physicians to program the needs of the patient and have the treatment executed with amazing precision and little additional harm. The use of cybernetics eventually dwindles with the onset of holographic body parts and the much more efficient use of programmable matter enhancements.

TYPES OF IMPLANTS

TO A SYNTHETIC ENHANCEMENT SPECIALIST, THE sky is the limit on the types of implants that can be created. From small, individual systems to complex full-body implants, cybernetic implants can change a patient's life.

▷ FEDERATION CYBERNETICS THROUGH HISTORY

The use of cybernetics in the Federation was first completely embraced in the late 22nd century, just after the Earth-Romulan War. With the war taking such an extreme toll on many involved, some ship crews were whittled down to skeleton crews as they waited for the rest to recover from the injuries they sustained. During this time, cybernetics were able to not only quickly treat the injured, but in some cases, the implants and prosthetics even enhanced their capabilities.

The use of cybernetic upgrades became a commonplace medical practice in the early 23rd century with most medical facilities using the treatment before considering other solutions. This use became apparent on almost every Starfleet ship, often having more than 10 percent of its crew cybernetically enhanced.

This all changed when Control became self-aware and launched an attack on the Federation. With so many cortical arrays requiring attachment to a ship's network, the rogue synthetic intelligence took control of many upgrades and controlled the wearers as its own appendages in its war. After this attack, Starfleet banned cybernetics until such a time that they were self-contained digital systems that didn't require networking with the ship's computers.

Luckily, the onset of isolinear processing provided the opportunity for cybernetics implants to manage themselves with the occasional interface with a secure medical computer. Once again, these enhancements became commonplace in the mid 24th century and would continue to be refined in the later part of the century using reverse-engineered Borg technology brought back from the Delta Quadrant.

.: AUDITORY PROCESSOR

This implant is used to control hearing for someone who is deaf. The device collects audio information and converts it into electronic signals. These signals are then transmitted to the auditory nerve where the brain interprets them as sounds.

.: AXONAL AMPLIFIER

Used in patients who have a slow processing speed, axonal amplifiers are installed just above the brain stem. The device emits a field that speeds up the electrical impulses known as action potential as they move away from the core of a neuron. In so doing, the amplifier speeds up the recall of information and the speed at which cells respond to brain commands.

.: BIOSYNTHETIC LIMB

A type of prosthetic that replaces a missing appendage with a technologically enhanced one that attaches directly to the body's nervous system. With proper physical therapy, the limb can simulate the sensation of touch and can move in the same way as the original limb.

.: CRANIAL OBSERVATION AND CONTROL IMPLANT

This implant replaces part of the patient's cranium and is directly connected to their neural transceivers. The device can be used to control memory recall and utilizes an ocular attachment to transmit what the subject is viewing to a receiver. With the ocular attachment installed, the wearer can see into the far ends of the visible light spectrum and can utilize a heads-up display that gives information about the things they are looking at. These devices also come with a modular earpiece that can be replaced with metallic ears shaped like another species' ears.

.: NEURAL INTERFACE

In the earlier years of cybernetics, a neural interface was necessary as it allowed a cyberneticist to directly connect to a patient's cybernetics with an external computer. This allowed the cyber physician to monitor the efficacy of the implant and to make fine adjustments to the devices as needed. As the years progressed, neural interfaces implemented transceivers to provide remote access to the implants.

.: SUBVOCAL PROCESSOR

Used in patients who have lost the ability to speak, subvocal processors can produce sounds just as a voice box does. These sounds need to modulated and adjusted on a regular basis as the connection between the processor and brain grows stronger. Subvocal processors come with hundreds of voice pitches to

choose from and the recipient of the device determines which best fits their personality and identity. The processor can also be adjusted to increase or decrease the hollowness of the voice and can implement different accents if needed.

.: VISUAL INSTRUMENT AND SENSORY ORGAN REPLACEMENT

Also known as a VISOR, this enhancement was designed to aid patients who were born blind or who have otherwise suffered ocular trauma. While not a direct comparison to the sight of patients without eye damage, the VISOR grants the wearer the ability to also see into the ultraviolet and infrared spectrums of light. Utilizing subcutaneous microcomputer links, the VISOR creates a digital image projected to the patient's visual cortex using an image resonator.

.: PERSONAL LOG

DOCTOR VORAAL

There is an atmosphere of expectation aboard *Challenger* which threatens to envelop my more emotional shipmates. Waiting to make actual initial contact with whatever race of beings inhabit this system's lone Class-M planet has generated higher degrees of uncertainty, tempered with higher than normal levels of enthusiasm. The likely cause is the nature of our troubled attempts at communication. Rarely has a first contact scenario been so hampered by such difficulties. A cursory scan of the computer's historical data banks finds only four similar events. Of those, two resulted in conflict before understanding and accord were reached.

Atmospheric readings indicate an environment suitable for humanoid life-forms. Initial automated probe surveys of this system indicated an advanced civilization, but closer, more detailed scans were aborted due to risk of discovery by the system-wide communications network. Therefore, we have no information regarding the physiology of the planet's indigenous population.

I await first contact with anticipation.

LOUIE MARYON

CHAPTER 6

ENGINEERING TECHNOLOGY

6.1	ENGINEERING 101	82
6.2	MECHANICAL ENGINEERING	83
6.3	DIGITAL ENGINEERING	88
6.4	ENGINEERING TOOLBOX	90

ANDREW CLARK

.:CHAPTER 6.1

ENGINEERING 101

"THE MORE THEY OVERTHINK THE PLUMBING, THE EASIER IT IS TO STOP UP THE DRAIN."

- CAPTAIN MONTGOMERY SCOTT

RODRIGO GONZALEZ TOLEDO

LT. COMMANDER BURK VEN JAXA

Ah, the pleasant scents of grease and ozone. The only better way to feel alive is a plasma burn across the palm! Engineering is an odd term, as many believe it refers strictly to the ship's engines. While ensuring the plasma output remains efficient is indeed part of the job, there is so much more you will put up with over the course of a duty shift.

This chapter is an introduction to the systems, tasks, and tools you will encounter every day. Trust in them the do their job, and trust in yourself to fix them.

THE FIELD OF ENGINEERING ENCOMpasses many things. At their core, an **engineer** is someone who uses scientific principles to design, build, test, and maintain machines, structures, and systems. As such, starships and stations usually have a number of different engineers with focuses in different areas. Even though the engineers have specializations, they are also capable of completing rudimentary fixes to all systems on the ship.

There are two main branches of engineering: **mechanical engineering** and **digital engineering**. Each of these overarching areas have their own challenges, optimizations, and tools to ensure they are functioning with a high level of efficiency. **Mechanical engineering** covers anything from the structure of a ship or station to the distribution of the energy that powers it. This includes managing the matter/antimatter reactor and all of the other systems that make a ship soar. **Digital engineering** involves the computer systems, networks, and the storage and flow of digital information. This information is necessary for controlling the multitude of systems on board, allowing them to operate autonomously.

▷ THE ENGINEERING STATION

Because an engineer isn't often on the bridge, their main computer interface station is in **main engineering**. This console provides real-time readouts of the warp engine system, impulse engine system, and the ship's matter/antimatter reactor. When fluctuations occur, the engineer can make simple adjustments with a touch.

When the ship is at alert status, however, the chief engineer is required to be on the bridge, so a station there reports these readouts as well. This station is much different than the others on the bridge as it is hardwired to the ship's crucial systems through the **optical data network** with direct trunks of monocrystal filaments. This allows the engineer direct, manual control in case of a major system failure.

.:CHAPTER 6.2

MECHANICAL ENGINEERING

"THE ONLY LADY I LOVE IS TWO DECKS TALL AND PUMPED FULL OF DILITHIUM."

- CHIEF ENGINEER ANDY BILLUPS

WHILE WORKING IN SPACE, PEOPLE are just meters away from death. With this in mind, mechanical engineers work to ensure the safety of everyone on board the ship, station, or outpost. Responsibility for the daily maintenance of the systems that ensure daily life can progress just as it would on a planet.

The systems on a ship are akin to organ systems in an organism, each connecting different technologies that act like organs. With dozens of technologies that require constant diagnostics and upkeep, a mechanical engineer is almost always on the move throughout the ship.

While routines and redundancies provide ample time for equipment to be cycled out for cleaning and maintenance, complications can arise that require emergency procedures and quick thinking. During these emergencies, engineers often fall back on their insight, using the multitude of schematics they've interacted with in their career to inform their quick responses and solutions.

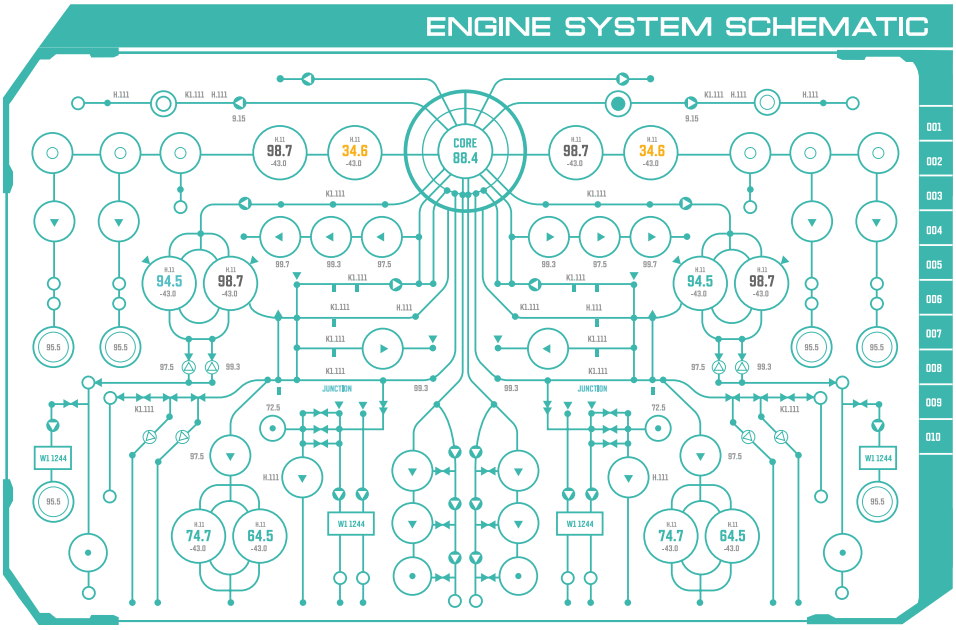
LT. COMMANDER BURK VEN JAXA

It is inevitable. The ship is going to break. This is where your knowledge of each system will come into play. You won't know everything, but if you don't find a solution, everyone on board dies. So, feel the pressure and let it guide your instincts.

This chapter provides an overview of the mechanical systems that will need repairs at some point. Just remember, the monotony of completing a two-day-long level 1 diagnostic on a single waste recovery pipe builds character.

RODRIGO GONZALEZ TOLEDO

ENGINE SYSTEM SCHEMATIC



MARTIN SOBR

▷ DIAGNOSTIC LEVELS

To ensure optimal levels of operation, system diagnostics need to be run all the time. While a majority of the time these diagnostics are computer automated, there are times when more vigorous diagnostics need to be run utilizing the engineers on board. Starfleet ships have five levels of diagnostics that can be run, each of which requires more interaction than the higher levels, with Level 1 requiring the most input.

- **LEVEL 5:** Level 5 diagnostics are fully autonomous and are run on a regular basis throughout the day. Due to the rapid automation of level 5 diagnostics, these scans can be completed in under 5 seconds.
- **LEVEL 4:** Level 4 diagnostics are also fully autonomous but with added layers of redundancy. The scans are repeated several times and analyze the core programming of each device that is a part of the system in addition to the efficiency of the entire system. Because of the redundant scans, level 4 diagnostics usually take around 30 seconds to complete.
- **LEVEL 3:** These diagnostics utilize people to interpret and verify the readings on core parts of the system being scanned. Level 3 diagnostics are typically run once a day on each ship system; however, especially important systems may require scans twice a day. Because level 3 diagnostics require crew members following up on the data, they usually take around 10 minutes to complete.
- **LEVEL 2:** Requiring crew verification of intensive automated scans, level 2 diagnostics report on all parts of a system and rescan anomalous readings produced to ensure accuracy. This level of diagnostic produces lists of probable problems in the system's main components for the crew to investigate with their own eyes. Level 2 diagnostics usually take a few hours to complete and are normally run weekly.
- **LEVEL 1:** The most rigorous and comprehensive diagnostic that can be run, level 1 diagnostics complete multiple scans of a system and all of its components, along with assessing the core programming of any digital systems linked to it. These scans require crew members to manually verify all system readings. Level 1 diagnostics typically require taking the entire system being scanned offline and can take up the entire shift of a team of engineers.

TRANSPORTERS

WHEN PEOPLE AND SUPPLIES NEED TO BE MOVED from the ship to someplace else or vice versa, transporters are the perfect tool to accomplish the task. A quick and easy option when shuttles are in high demand, a ship's transporter systems can move their payload over vast distances. In emergency situations, transporters are always the first choice for evacuations, and are a key tool for delivering supplies to or from a ship.

There are two basic types of transporters on a ship: **cargo transporters** and **personnel transporters**. While each type serves a different role, engineers are responsible for ensuring both systems are operating at maximum efficiency. Additionally, both types of transporter utilize similar systems, though they are calibrated much differently, as detailed below.

.: CARGO TRANSPORTERS

Usually installed in cargo holds and flight decks, cargo transporters are designed to transport large objects and containers that aren't of complex makeup. This is because this type of transporter sacrifices refinement and detail in its scans in order to account for the cargo's bulk. The system's scans work at a molecular level instead of a quantum level, allowing the system's power and computing to compensate for the sheer mass of the objects being brought in or beamed away.

.: PERSONNEL TRANSPORTERS

In the decades following the transporter's invention, many were worried to use the device to travel from one location to another. Though the first devices were strictly used for cargo, with much power and computer resources, they were capable of moving one or two people at a time. The concerns were eventually allayed and personnel transport became commonplace after the Earth-Romulan War.

Even though most ships only utilize two to four personnel transporters at a time, they typically have two to three times that many on board. These extra transporter pads are used periodically in case of an emergency evacuation. Emergency pads can operate with reduced power and utilize scan-only phase coils that allow for one-way transport off the ship. They cannot be used to beam people back on board.

▷ TRANSPORTER OPERATION

Utilizing similar technology to replicators and molecular reprocessors, **transporters** are a device capable of moving people and cargo up to 40,000 kilometers away. Because the system is a necessity, the pads always have a rigorously trained transporter chief to monitor their operation. While the system itself is complicated, the process of beaming from one place to another only requires five steps. During each step, a battery of level 5 diagnostics is run to ensure safe transport.

- **STEP 1 – TARGET SCAN AND COORDINATES LOCK:** During this step of the process, two things are achieved. The targeting scanners locate where the target will be transported to and adjusts for relative motion. The scan also confirms the environment is safe to transport to.
- **STEP 2 – ENERGIZE AND DEMATERIALIZE:** During this part of the process, the molecular imaging scanners create a blueprint image of the subject with quantum level resolution. Then the phase coils convert the person or object into a matter stream projected from the ship's hull to the transport location.
- **STEP 3 – PATTERN BUFFER AND DOPPLER COMPENSATION:** The subatomic matter stream is then stored in the pattern buffer while the computer system compensates for the Doppler shift between the transporter and targeted destination. The pattern buffer can also be used to store the scanned target's matter stream indefinitely in the case of an emergency or incurable illness so long as there is still power running to it.
- **STEP 4 – MATTER STREAM TRANSMISSION:** The matter stream is now transmitted to the target location from emitter pads located on the ship's hull. An annular confinement beam protects the matter stream as it travels to its destination. Shields block a matter stream from getting to its destination entirely by dispersing the subatomic particles when they come into contact.
- **STEP 5 – REMATERIALIZE:** The matter stream arrives at its destination and the quantum blueprint taken in Step 2 is used to reassemble every atom just as it was before being dematerialized.

.: PORTABLE PATTERN BUFFER

This handheld device is used to store and protect items or people that are too massive to carry around easily. When the buffer is placed onto a target, it can be activated to dematerialize what it is touching and storing the target's pattern until rematerialized. This allows for easy transport of people and objects that would otherwise slow travel down with their mass.

.: TRANSPORT INHIBITERS

Projecting a field that scatters targeting scans, these devices make transporting a target all but impossible. Coming in many shapes and sizes, inhibitors can block the transport of anything from the size of a small room to single individuals.

This technology has also been modified to be used during battle, fired in the form of darts from a weapon that block the transport signal of the individual hit by the projectile. A character who suffers an Injury from a transport inhibitor rifle instead gains the **Transport Inhibited** trait until they use a major action to remove the device.

TRANSPORT INHIBITOR RIFLE: Ranged, Size 2H, Accurate (Opportunity 1)

.: TRANSPORTER LOCK

Used in the 32nd century, transporter locks are devices that create a direct connection with a ship's transporter system. Utilizing a built-in molecular imaging scanner, this device dematerializes itself and whatever it is touching and projects the matter stream back to the ship. Such a device helps to get around interference and transport inhibitors but must be place manually in order to be used.

Use the **Transporter Complications** table whenever you want to randomly generate a problem with the transporter system.

.: TRANSPORTER COMPLICATIONS

D20	TRANSPORTER COMPLICATION
1–2	The biofilter throws an error and sweeps the pattern dozens of times, removing gut bacteria and other helpful microorganisms from the crew member.
3–4	The transporter has difficulty locking onto the target and beams them up along with their immediate surroundings.
5–6	The transporters' Heisenberg compensators fall out of alignment due to stray interference, and the person beaming up loses the last hour of their memory.
7–8	The Heisenberg compensators are unable to filter out subspace particles at the transport site, giving telepaths a migraine from psi noise while in the matter stream.
9–10	Upper atmospheric ions interfere with proper transport and cause the away team to stay in the matter stream for much longer than usual.
11–12	Part of the transporter room's emitter pad array fails, leaving half the away team members suspended in transport until the damage can be repaired.
13–14	A high-energy event creates a subspace fracture while transport is in progress, moving the away team between nearby parallel timelines.
15–16	Doppler compensation is off in the transporter resulting in the person transporting feeling as though they were moving quickly through space while in the matter stream.
17–18	Spatial interference makes an easy transporter lock impossible, and pattern enhancers must be used.
19–20	An energy surge during the rematerializing process fuses each matter stream into a single individual with some traits of each that were combined.

TURBOLIFTS

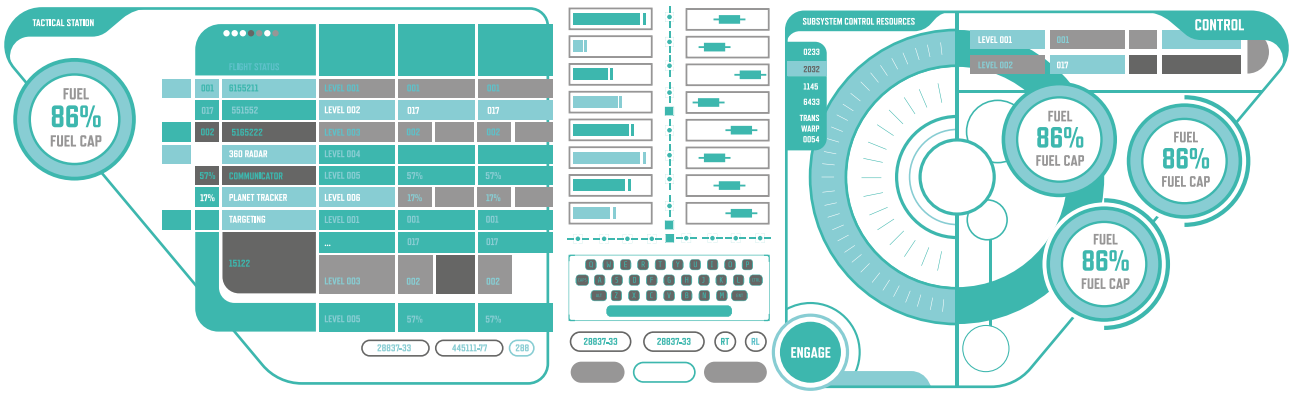
REQUIRING MUCH LESS ENERGY THAN TRANSPORTERS, turbolifts are the easiest way to move from one section of the ship to another. Utilizing frictionless magnetic induction and a complex network of arteries, the turbolift cars can get from one end of the ship to another in less than a minute. Constantly accelerating during transport, each turbolift car has an inertial damper matrix installed at their base, easing most of the effects of the acceleration on the rider.

The turbolift system provides multiple routes to each location in the ship to avoid clogging up during times of high traffic. The tracks each have several hubs around the ship where they can shift their motion from horizontal to vertical and vice versa. This allows engineers to shut down one section at a time without having too much of an impact on the overall network.

Use the **Turbolift Complications** table whenever you want to randomly generate a problem with the turbolift system.

.: TURBOLIFT COMPLICATIONS

D20	TURBOLIFT COMPLICATION
1–2	Inertial dampers stop working causing the riders to experience the acceleration by being thrown back and pinned to the walls of the car.
3–4	The horizontal lift tubes stop working, forcing people to walk across entire decks to get to their destination.
5–6	The audio command input stops recognizing the crew members' voices.
7–8	The turbolift car becomes stuck somewhere in the system between stops.
9–10	The car and everyone in it shift into a parallel dimension.
11–12	The magnetic field from the induction tracks transfers into the car, making metal objects stick to the walls.
13–14	The speakers inside the car project what people are saying in the rooms that it passes.
15–16	An NPC that the riders are in conflict with gets on at the next stop.
17–18	All the cars in the network become charged with negative ions, causing them to act like Faraday cages that repel both sensors and communications.
19–20	The turbolift system reports bringing the riders to their destination but it is actually the wrong location, decks away from the place they want to be.



.:CHAPTER 6.3

DIGITAL ENGINEERING

"COMPUTERS MAKE EXCELLENT AND EFFICIENT SERVANTS, BUT I HAVE NO WISH TO SERVE UNDER THEM."

- LT. COMMANDER SPOCK

RODRIGO GONZALEZ TOLEDO

LT. COMMANDER BURK VEN JAXA

Even the most advanced species in the Galaxy can never react as quickly as the ship's computer when it comes to emergencies; however, the answers computers produce are no replacement for an engineer's senses. Sure, the digital infrastructure keeps the ship running when you're scrubbing carbon filters, but the system can be finicky and you will need to assist it from time to time. Use this powerful tool to help when your team is busy, but never rely on it unless you want to be thawing out deck seven when the cryogenic fluid pump computer stops regulating the flow again.

STARSHIPS WOULD NOT BE ABLE TO travel vast distances in space without having computers to manage calculations and to regulate the systems on board. The sheer amount of computing power necessary to run these systems is so vast that most societies develop massive structures to store the computing mainframe in the ship and many have developed technology that allows for faster than light processing speeds.

.:COMPUTER CORE

Typically two to three decks tall, computer cores are where the processing for the computer system takes place. Each computer core on the ship or station utilize a battery of subspace field generators that create a warp field around the core, creating faster than light processing speeds.

.:COMPUTER MEMORY

Computer cores utilize tens of thousands of isolinear chips arranged into over one hundred vertical column modules and provide over half a million kiloquads of storage potential depending on what software packages are installed on the system.

.:ISOLINEAR CHIPS

The primary software and data storage medium in the 24th century, isolinear chips use optical crystal layering that improves on the crystal memory cards used during the prior century. Utilizing on board nanoprocessors, isolinear chips manage their own data configuration, which allows quicker access to stored data. Isolinear chips contain superconductive aspects, allowing for faster than light data transfer when in placed into the main computer core.

.:OPTICAL DATA NETWORK

Data is transferred photonically using monocrystal microfibers that connect one of the computer cores to the rest of the ship. The microfibers connect to the cores in large conduits filled with nanofibers known as trunks and branch out into smaller packages as they move toward locations further away from the central processing area.

.:SUBPROCESSORS

Because ships and stations are so large, the main computer core requires subprocessors scattered throughout the structure to enhance system response. In extreme situations, even though they operate at sub light speed, the ship can use the subprocessors' computing power to maintain basic functions should a computer core become nonresponsive.

Use the **Computer System Complications** table whenever you want to randomly generate a problem with a computer system.

.:COMPUTER SYSTEM COMPLICATIONS

D20	COMPUTER SYSTEM COMPLICATION
1	The computer generates an emergent pattern in its data, exponentially increasing the amount of storage needed as the complexity also improves response time.
2	The main computer core's subspace field generators fail and shut down, reducing computer response time.
3	A power surge increases the strength of the subspace field generators around the computer core and improves processing time for 30 seconds, and then burns out the entire generator.
4	Processing chips are improperly replaced after maintenance, resulting in ship systems failing at random times.
5	The secondary computer core becomes corrupted and the information rot threatens to spread to the primary core.
6	The ship's computer accidently ties the ship's tactical systems in with a holodeck program being run by an off-duty crewmember.
7	Damage to the ship cuts off main data access to the computer core from main engineering, requiring a physical data line having to be run.
8	Data checks show the primary core isn't updating to the secondary core, and vice versa, indicating rapidly increasing data inefficiencies.
9	Emergent patterns in the data structure results in the computer forming an AI who quickly concludes that it shouldn't be noticed. It hides in the holodeck programs, experiencing life through holo-character's eyes.
10	The ship's optical subprocessors begin operating out of synch and ship's diagnostics begin throwing error codes.
11	The LCARS interface panels are stuck displaying data in the UV spectrum, making most humanoid species unable to see them.
12	The ship's bioneural gel packs become infected with a bacterial infection, slowing all data packages that flow through them.
13	The main computer's universal translator software has become corrupted and displays are only showing text in ancient Vulcan.
14	A replication error in isolinear optical storage devices has gone unnoticed until a cascading automation failure causes the ship's life support to shut down.
15	All PADDs on the ship are unable to transmit and receive data using their small subspace transceivers due to subspace interference, requiring crew to use large consoles.
16	The main computer core is partially corrupted from a colony of extremophile fungus eating away at the processing systems.
17	The subspace accelerator field around the computer core weakens as the ship increases its warp speed.
18	The computer is approaching a state of awareness and often questions queries given to it and will sometimes provide information without asking for it.
19	Massive data corruption results in the main computer shutting down the warp core and fusion reactors as a safety check, leaving the ship without a means to generate power.
20	The warp field around the computer core becomes inverted, slowing the processing capability due to the relativistic relation with the ship around it.

.:CHAPTER 6.4

ENGINEERING TOOLBOX

"AND, UM, THROW IN A T-88 FOR EACH OF US."

- ENSIGN SAM RUTHERFORD

RODRIGO GONZALEZ TOLEDO

LT. COMMANDER BURK VEN JAXA

Yes, it does seem that there's an infinite number of tools to use for mending things that your crewmates break. If you don't have time to replicate the tool that you need, its best to adapt what you have on hand. Luckily almost everything in our toolbox has multiple uses and can be useful with enough creativity, jury-rigging, and insight.

While the following list provides options for the many tools found on our ship, other species may have analogues for them on their ships. If you are ever in a situation where you don't know the tools or the systems, especially on another species' ship, used your ingenuity and make the tools work to your advantage.

WHILE SEVERAL OF THE TOOLS USED for repairs on the ship utilize computerized scans and energy fields to perform their function, a majority of them are analogue simple machines that operate without needing an onboard power source. Additionally, the simpler the tool, the easier and quicker it is to replicate, which is important during times when power is limited.

.:DUALITIC INVERTER

Used to redirect the direct flow of plasma into another direction, dualitic inverters flip the polarization of the electromagnetic waveguides used to contain the energy stream. The inverter can even be used to make the waveguides oscillate, effectively changing the direct flow of plasma into an alternating flow.

.:FLUX COUPLER

Used to allow magnetic flux to transfer from one system to another, this tool bridges the gap between systems and allows the magnetic flux to continue flowing in the case of damage to the EPS network.

.:FOCAL ADJUSTMENT SPANNER

These delicate tools are used to adjust the flow of photons within an optical fiber network. This is accomplished by providing a bridge that allows the photons to continue on their path while manipulating their waveform as needed.

.:GRAVITIC CALIPER

A precise tool that allows the user to change the voltage of individual electrons within a plasma flow. Using a graviton field to manipulate small numbers of electrons, gravitic calipers are perfect for precision plasma flow work, though a duotronic probe is better at large-scale flow adjustments.

.:HYPERSPANNER

A nearly universal multitool, the hyperspanner is used to relink or bypass electrical systems. Complete with a built-in power supply, hyperspanners are the go-to tool for basic fixes to electronic equipment such as computer stations and replicators.

.:IONIC FLOW REGULATOR

A device that is used to increase or decrease the speed in which ions travel in a system. The tool's polarity can be flipped, allowing it to be used to regulate the flow of both positively and negatively charged ions.

.:MAGNETIC PROBE

Magnetic probes are used to cut through magnetic fields by inserting the tool perpendicularly into the flux. With a twist of the tip, the device's own polarity can be reversed. This tool can be used to shut down the fuel injection in a matter – antimatter reaction chamber.

.:MICRO-RESONATOR

Micro-resonators are used to degauss small devices. The tool removes unwanted magnetic fields created by devices. With appropriate adjustments, the tool can make a piece of equipment effectively invisible to electromagnetic scans.

.:ODN RECOUPLER

Used to reconnect monocrystal microfiber data lines, optical data network recouplers manipulate the crystalline structures within a fiber causing them to fuse together with another fiber at a molecular level.

.:PARAMETRIC SCANNER

Utilizing high frequency waveforms to complete multiple imaging scans of a target. Typically used to help with aligning phase coils in a warp core, the tool can also be used to take imaging scans of other systems and can even create imaging scans of living organisms when adjusted appropriately.

.:PHASE MODULATOR

Phase modulators are commonly used to adjust the wavelength and frequency of optical light being transferred via an optical data network. This tool can be used to install a new computer system within a device to ensure the system can handle the data load necessary for the device to function within normal parameters. Phase modulators also have applications in plasma cannons, certain warp drive components, and as part of gravimetric torpedo guidance systems.

.:PLASMA TORCH

A cutting tool that utilizes a focused plasma beam to melt its way through solid objects, plasma torches can be adjusted to vary the amount of energy released. A common engineering tool, many extra vehicular suits have plasma torches built into them.

.:QUANTUM FLUX REGULATOR

A quantum flux regulator is used to the adjust the amount of quantum flux generated by or exhibited by a system. Reducing the state of flux also reduces the randomness of energy spikes or drops within the system whereas increasing the quantum flux would increase this randomness.

.:SELF-SEALING STEM BOLT

Used as a fastener in a variety of applications, self-sealing stem bolts are an evolutionary improvement over first-generation stem bolts, which had to be manually sealed. Stem bolts are a common device found on most starships and facilities, and often are used in the production of reverse-ratcheting routing planers.

.:TRIDENT SCANNER

The trident scanner was an engineering device designed to locate faults within the circuitry of a system and to aid in connecting or repairing power relays. Capable of producing images of the microcircuitry and highlighting the areas where connections need to be restored, the trident scanner was made obsolete in the 24th century when versatile engineering tricorders were developed and brought into use.

.:PERSONAL LOG

LT. COMMANDER BURK VEN JAXA

The silence irritates me.

To be this close to making contact with a new civilization and be stopped by a language barrier? That sounds ridiculous in the 23rd century, but here we are. We've held station at the edge of the system for nearly twenty hours, waiting for the communications department to bridge whatever gap seems to have gripped our universal translation protocols. Meanwhile, we sit here and present what we hope is a peaceful posture, transmitting the same greetings over and over, in all languages and on all frequencies. What if they see us as a threat and act accordingly?

All we can do is prepare ourselves as best we can, and wait. I hate waiting.

We're as ready as we can be. There are only so many diagnostics and inspections I can conduct while we bide our time. Waiting makes me hungry, and Doctor Voraal has already altered my dietary protocols twice this month. Another salad might send me running for the nearest airlock.

CHAPTER 7

WEAPONS AND TACTICAL GEAR

7.1 THE ARMORY 94

ANDREW CLARK

.:CHAPTER 7.1

THE ARMORY

"WE COME IN PEACE, BUT WE'LL DEFEND OURSELVES IF NECESSARY."

- CAPTAIN JAMES T. KIRK

RODRIGO GONZALEZ TOLEDO

COMMANDER XANTHUS TH'RAVIQ

What you learned at the Academy about the ethics of applying Starfleet weapons and force were not mere words. To the best of our ability, we strive to find peaceful solutions to the challenges and adversaries we might face as we seek to explore and understand the vast unknown universe around us.

However, when violence of action cannot be avoided, we must prepare. This means familiarizing ourselves, and remaining proficient, with the tools we would prefer to never use.

WHILE STARFLEET HAS A DEFENSE-first policy, many other spacefaring civilizations have different philosophies when it comes to making and using weapons. This chapter provides details about a wide variety of weapons, broadly categorized into **melee weapons** and **ranged weapons**.

MELEE WEAPONS

WHILE HUMANITY LONG AGO MOVED away from valuing knives, swords, and other blades as primary weapons for combat or defense, edged implements are still valued as tools for numerous reasons. Many cultures embrace the heritage of such weapons, even if only in ceremonial capacities, and others continue to view them as necessary complements to whatever energy or projectile weapons their personnel carry.

.:KLINGON EMPIRE

Klingons utilize a wide variety of melee weapons for both combat and rituals. Following is a small sampling of their weaponry.

BAT'LETH

Every *bat'leth* draws inspiration from the original sword of honor forged by Kahless the Unforgettable. Such weapons are often passed down within Klingon families for hundreds of years, and each warrior entrusted with its care pledges to carry it with honor and courage.

D'K TAHG

A weapon carried by nearly every Klingon warrior. Steeped in tradition and ceremony, the blade is often handed down between generations within a Klingon family. It is often used for personal combat. In Klingon culture, to be presented one is a great honor, and for a non-Klingon to receive one is a gift without equal.

GIN'TAK

An ancient combat weapon, the *gin'tak* could be used in a parry-and-thrust manner during hand-to-hand combat, or thrown as a spear.

KUR'LETH

A somewhat larger variation on the *mek'leth*, this curved blade features a second grip near the tine of its primary blade. Due to its size, it is more difficult to conceal and, as such, is a less preferable choice for covert carry.

KUT'LUCH

The traditional weapon of Klingon assassins who favor its serrated blade, this is more compact and easily concealed than the *d'k tagh*. This knife is not to be confused with the *mevak*, a similar blade used in the *Mauk-to'Vor*, the Klingon version of an assisted suicide ritual.

MEK'LETH

Smaller than the *bat'leth* and more easily wielded with a single hand, this is a preferred close-combat sword for many Klingon warriors. Its dual, curved blade design makes it an ideal slashing weapon, and its lighter weight allows it to be thrown with surprising accuracy. Many warriors carry their *mek'leths into battle strapped to their back within easy reach.*

.:ROMULAN EMPIRE

Following are descriptions of a few Romulan hand weapons.

DATHE'ANOFV-SEN

Colloquially known as an "honor blade," this is a sword passed down from generation to generation within Romulan families as a closely-guarded heirloom. Though rarely carried openly in modern society, most *dathe'anofv-sen* are instead displayed in a place of respect within Romulan homes.

TAN QALANQ

A straight, single-edged sword, this is the preferred weapon of the **Qowat Milat**, a sect of Romulan warriors who conduct themselves under a strict code of conduct completely at odds with nearly every other aspect of the secret, orderly, conventional Romulan society.

.:OTHER WORLDS

Many other cultures utilize unique melee weapons. Descriptions of a few notable ones are provided below.

ANDORIAN USHAAN-TOR

Originally designed as a tool for miners working in Andoria's subterranean ice caves, this curved work blade also occupies a hallowed place in Andorian tradition. It is the central weapon utilized in the *Ushaan*, an honor duel fought to the death.

HIROGEN SCYTHE

A preferred weapon when wanting to make their final kill at close range. The choice of this blade as well as the ritual surrounding its use is an integral part of Hirogen hunting practices.

JEM'HADAR KAR'TAKIN

Combining elements of spear and sword, this weapon possessed a straight-edged blade long enough that it could inflict significant damage without its wielder getting too close to their enemy.

VULCAN LIRPA

A primary combat weapon in ancient Vulcan warfare, in modern Vulcan society the *lirpa* is relegated to ceremonial display and use. If circumstances warrant it, the *lirpa* is one of several weapons which can be employed during the challenge and combat phase of the Vulcan *koon-ut-kal-if-fee* mating ritual.

Use the **Melee / Edged Weapon Complications** table whenever you need to generate a complication related to a melee or edged weapon.

.:MELEE / EDGED WEAPON COMPLICATIONS

D20	MELEE / EDGED WEAPON COMPLICATION
1–2	Player is unable to draw their weapon before they're engaged by opponent.
3–4	Player's weapon is outmatched by opponent's weapon.
5–6	Player's weapon is ineffective against opponent's clothing, protective body armor, or other carried equipment.
7–8	Player's weapon becomes entangled or ensnared by a nearby obstruction.
9–10	Player's weapon becomes caught in opponent's armor, equipment, or body.
11–12	Attack with weapon overextends player's reach, exposing them to counterattack.
13–14	Player's weapon is broken by opponent's weapon.
15–16	Player drops or loses control of their weapon.
17–18	Opponent seizes player's weapon.
19–20	Player is wounded by opponent's attack.

FOR CENTURIES, HUMANKIND DEVELOPED AND employed all manner of lethal projectile weapons. Like many races scattered through the Galaxy, Humans used many of these to hunt lower-order life-forms for sustenance as well as tools to wage war on one another. Following the Third World War, first contact with the Vulcans, and a concentrated effort to begin exploring beyond their home star system, Humans progressed toward energy-based armaments which—while still capable of inflicting fatal injury—at least offered non-lethal alternatives. Like other technology created and perfected in service to expanding humanity's footprint among the stars, such weapons saw continuous improvement and refinement.

.:EARTH STARFLEET – 22ND CENTURY

While the first non-projectile and non-lethal weapons were developed early in the 21st century and utilized by law enforcement and military entities, the Third World War contributed to their accelerated proliferation. Projectile weapons continue to exist, but their numbers decreased and those that survived war and humanity's struggle to regain its footing in the wake of First Contact became highly sought after by private collectors. Many found themselves relegated to exhibits in museums as well as objects of curiosity.

ELECTROMAGNETIC PISTOL – MODEL EM-33 (CIRCA 2130)

Developed as a primary alternative to projectile-based sidearms, EM pistols employ concentrated bolts of focused plasma, generated by a power cell contained within the weapon's frame above the handgrip. The pistol was standard issue for Starfleet personnel for more than two decades and remained in use by members of Earth's Cargo Service well into the late 22nd century. By 2153, a similar but more powerful version was standard issue for Military Assault Command Operations (MACO) personnel.

PLASMA RIFLE (CIRCA 2150)

A common small-arms weapon used by members of the Earth Cargo Service as well as on Earth by civilians and Starfleet personnel. The rifle features two primary settings, allowing it to fire focused plasma both as a constant energy stream or concentrated in the form of energy-based "bullets," and intensity levels allow for stunning or lethal force.

PHASE PISTOL (CIRCA 2151)

With its more compact power cell and easier, modular design to facilitate disassembly and maintenance, the phase pistol supplemented the plasma rifle as Starfleet's primary sidearm with the launch of Earth's first deep-space exploration "starship," the *Enterprise* NX-01. Unlike similar weapons employed by MACO personnel, Starfleet phase pistols can be set to discharge focused energy in the form of a phased pulse or steady stream. Both options can be set to stun or kill.

PARTICLE RIFLE (CIRCA 2153)

Designed as a primary small-arms weapon for use in combat situations by MACO personnel, the particle rifle features a dual-barrel, "over-under" configuration which allows it to fire concentrated discharges of focused plasma at separate intensities. The rifle's upper barrel generates bolts of plasma at more powerful frequencies, while the lower barrel fires energy beams on par with phase pistols of the era. Foremost a combat weapon, the rifle includes multiple power settings ranging from simple stunning and killing force up to higher-intensity disintegration capability. Sustained use on this setting can deplete the weapon's power cell.

.:FEDERATION STARFLEET – 23RD CENTURY

The founding of the Coalition of Planets in the mid-22nd century along with its ultimate dissolution in favor of the United Federation of Planets fueled ever-lofty ambitions of pushing deeper into the Galaxy to explore newly discovered worlds and meet new civilizations. War with the Romulans served as a harsh reminder that the best of intentions could well be misunderstood or even unwelcome. The continued and even evolving ability to defend oneself remained an unfortunate yet unavoidable and practical necessity.

LASER PISTOL (CIRCA 2250)

Standard sidearm for Starfleet personnel aboard all starships and ground or station-based installations. Designed with an eye toward simplicity, the pistol features multiple power settings available by twisting the weapon's barrel through the various options, ranging from stun to lethal force as well as higher settings allowing for cutting through or disintegrating obstacles or targets. The pistol's maximum setting allows for an overload of its power cell via a forced-chamber explosion.

The colloquial misnomer 'laser' continued to be used, in particular by Starfleet personnel, even after the weapon was withdrawn from active use in the mid-2260s. The moniker and its physical design—though never officially confirmed—was alleged to have been a deliberate choice by an engineer who possessed an affinity for fictional representations of future space travel as depicted on Earth during the 20th and early 21st centuries.

PHASER, TYPE 1 (CIRCA 2255)

The Starfleet sidearms developed and utilized during this period represent the first real employment of "phased energy rectification," a process which allows for greater efficiency in the transference between stored and projected energy. The original model of Type-1 phaser demonstrates a shift in mindset so far as the overt display of personal weapons by landing parties. Fully functional on its own, it is also one half of a two-part design which, when combined, offers an even greater degree of firepower and versatility. The Type 1 by itself provides Starfleet personnel with a means of inconspicuously carrying weapons in more delicate situations such as diplomatic and personal security functions and first contact scenarios.

PHASER, TYPE 2 (CIRCA 2255)

Consisting of a handgrip and frame which contains a larger power cell and integrated energy transference components, the Type-2 phaser only becomes usable after fitting the Type 1 into its upper receiver. This results in augmented firepower capability and duration. Though standard equipment aboard Starfleet vessels and installations, they are typically carried only by security personnel unless otherwise directed by the commanding officer. Despite its use to great effect during the Federation-Klingon War, this model of phaser, along with its immediate successor, would prove to be merely interim weapons, with Starfleet research and development personnel using lessons learned during its period of active use to create a sidearm with even greater efficiency as well as adaptability.

PHASER, TYPE 3 (RIFLE) (CIRCA 2255)

A larger, more powerful complement to the standard hand phaser of this period, the phaser rifle was designed for security personnel as well as other tactical situations. It possesses the same rage of intensity settings as its pistol counterpart, but with the ability to channel greater power thanks to a larger power cell designed for sustained combat situations.

PHASER RIFLE (CIRCA 2264)

A more advanced model of the larger weapon utilized by Starfleet a decade earlier. Larger and heavier than their predecessors, the rifle's configuration allowed for discharge of energy via one of three separate "pre-fire chambers" each with its own power setting which could be selected by the operator. Even as the rifle was deployed to starships and forward installations, Starfleet policy was already moving away from the use and even display of the larger weapons except for the most extreme of circumstances.

PHASER, TYPE 1 (CIRCA 2266)

This model of Type-1 phaser continues the design approach of part of a two-component design intended to provide Starfleet personnel with an option to carry weapons in a more discrete manner. Like its predecessor, the Type 1 can be concealed in pockets or beneath layers of clothing, and features eight power settings ranging from simple stun to killing force. The weapon's power output can also be channeled at lower intensities to serve as an ignition source, or increased to its absolute maximum in order to trigger an overload as an improvised explosive.

PHASER, TYPE 2 (CIRCA 2266)

As with its precursor model, the Type 2 consists of a handgrip housing an easily replaceable power cell, which in turn fuels the weapon's integrated energy transference components between itself and the Type 1 phaser fitted into its upper receiver. Its streamlined design and more easily maintained and repaired components made it the ideal sidearm issued to Federation starships assigned to deep space exploration, and it would remain the benchmark for Starfleet small armaments for decades to come.

PHASER, TYPE 2 (CIRCA 2270)

Already experiencing a near-wholesale renovation during this period, the advancements in Starfleet technology naturally extended to weapons. This included the standard sidearm, which once again sported a design evoking the phasers of the 2250s. No longer featuring a detachable Type-1 phaser component, the weapon

instead keeps everything within one integrated frame, with a larger pistol grip housing a more efficient power cell. Despite a deliberate choice to make it appear less intimidating than its predecessors, this model of phaser retains the standard range of power settings and intensities, including the ability to force an overload if a tactical situation warrants such drastic action.

PHASER, TYPE 1 AND TYPE 2 (CIRCA 2285)

The next iteration of this weapon marks a return to design elements borrowed from the model used less than two decades earlier. This once again featured a smaller, upgraded yet still discrete model of Type-1 phaser which can be connected to the upper receiver of the modified Type-2 frame. This allows both components to house their own internal power cell, though the version contained within the Type-2's handgrip is larger and holds a larger energy charge.

PHASER, TYPE 2A (CIRCA 2290)

By this period, the most advanced model in this family of phasers was standard equipment throughout Starfleet. Deployed alongside the combination Type-1/Type-2 configuration rather than replacing that model, this version integrated the separate components into a single unit. With its even greater power cell capability, this model was originally intended for tactical operations. By the mid-2290s, it supplanted the other version and became standard issue across Starfleet.

.: FEDERATION STARFLEET – 24TH AND 25TH CENTURIES

Following key conflicts in the first half of the 24th century, Starfleet rededicated itself to its mission of exploration and the expansion of knowledge. Though this sense of optimism would continue to be challenged, the organization refused to cast it aside. Starfleet naturally retained its training and proficiency standards with respect to martial subjects such as combat strategy and tactics, as well as an appreciation for the lessons to be learned from the history of conflict in all its forms. However, it also made conscious efforts to lessen its militaristic tendencies in everything from the uniforms worn by its officers to the weapons they carried.

PHASER, TYPE 1 (CIRCA 2360)

Not lost among the many technological advances characterizing the 24th century was a rethink of not only how and when personal weapons would be deployed but also in their physical appearance and characteristics. This included a new take on the compact Type-1 phaser from nearly a century earlier. More advanced than its 23rd century counterpart, it is designed function wholly on its own and does not include an option to be integrated with a larger weapon frame or handgrip. It nevertheless offers a similar range of power settings and versatility, including an option which allows for delayed, autonomous fire at a set interval.

PHASER, TYPE 2 (CIRCA 2360)

Mimicking some 23rd century design aesthetics, this version of Type-2 phaser was designed as a complete weapon rather than offering the partnering of a Type-1 model. It also features a radical departure from its predecessors so far as its physical characteristics, moving away from a pistol-like aesthetic in favor of a leaner, lower-profile design. Unlike its smaller, more compact Type-1 counterpart, this model features a wider range of power settings—sixteen in all—increasing upward through stun and lethal force and even the ability to disintegrate large objects and obstacles.

PHASER, TYPE 2 (CIRCA 2366)

Although the previous model had proven effective under a number of conditions, this updated version addressed concerns expressed by Starfleet personnel following practical use. A more compact emitter results in increased power concentration on the selected target, and simplified controls to select power usage and intensity allow for such action to be taken even in the most adverse conditions. Though this version of the phaser's basic profile would see near continuous use for nearly two decades, subtle updates both in shape as well as power and adaptability would be introduced, lending themselves to all manner of tactical operations and other unforeseen circumstances in harsher environmental conditions.

PHASER, TYPE 3 (RIFLE) (CIRCA 2366)

Originally intended for use by Starfleet ground tactical forces, models of this larger, more powerful weapon eventually were approved for use by security personnel and others aboard starships and starbases at the commanding officer's discretion. This model is more modular in design, its emitter and control interface inspired by its Type-2 counterpart. The dual handgrip carries forward the lineage established by its 23rd century predecessor. Similar to the Type-2 hand phaser, the rifle features sixteen intensity settings ranging from stun to total disintegration, though its larger power cell allows for more sustained operations at the higher levels.

PHASER, TYPE 3 (RIFLE) (CIRCA 2370)

Developed as part of Starfleet's larger research and development effort intended to devise new weapons and defenses aimed at fighting the Borg Collective, the Type-3 model offers increased power levels and a longer-lasting, easily replaced power cell that heightens efficiency in tactical situations. The rifle's intensity settings allow for easy toggling between focused energy bolts or concentrated streams. This model also includes a magnetization setting which allows it to be used and secured in zero-gravity environments such as extravehicular activities and operations.

PHASER, TYPE 3A (RIFLE) (CIRCA 2373)

Also known as a compression phaser rifle, this weapon was deployed during the Dominion War alongside the Type 3 and primarily intended for tactical security operations. Aside from the obvious physical differences, setting it apart from the standard Type 3 is a dual-emitter resonator which allows for more precise tuning and projection of the discharged energy beam. This enhanced operation requires a two-fold power cell installed in the weapon's upper receiver. The Type 3a is also capable of functioning even when confronted by many forms of energy dampening fields.

TR-116 (RIFLE) (CIRCA 2375)

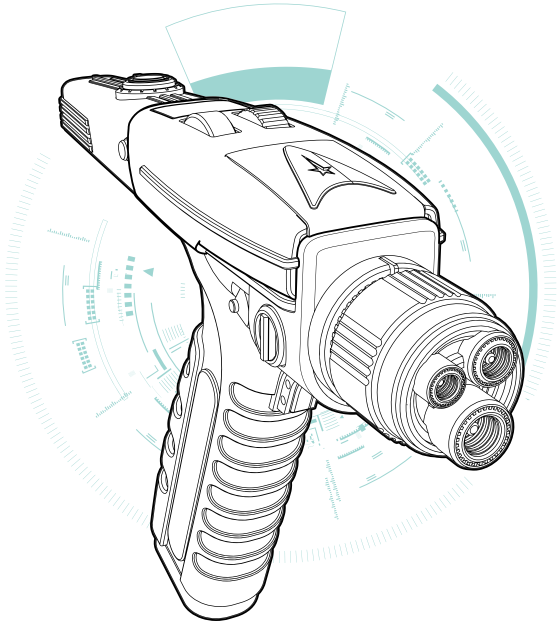
A rare exception in this era, being a projectile-based weapon. Developed by Starfleet Security's Research and Development Division, the TR-116 was a means of countering the debilitating effects of energy dampening fields, force fields, and radiogenic environments which often hampered most forms of particle-beam weapons. Defense against drones of the Borg Collective and their ability to adapt to the frequencies of energy-based weapons was also a driving factor in the weapon's conception and design. The rifle fires chemically-propelled tritanium bullets, which at close range are extremely hazardous and often fatal to most humanoid life-forms. Never produced in significant quantities, the TR-116 could be replicated via access to protected pattern files at a commanding officer's discretion.

PHASER, TYPE 2 (CIRCA 2385)

A succession of conflicts and the increased need for a more overt response to threats against Federation security inspired a return to a more martial weapons design sensibility. The hand phasers deployed during this period, with their distinctive silhouette which includes a handgrip below the weapon's frame, evoke 23rd century design elements. A raised targeting sight enhances the Type 2's close quarters tactical utility, and an easily replaced power cell rests inside the handgrip. The weapon includes a range of sixteen intensity settings which by now have been commonplace with Starfleet sidearms for more than two decades. With the dawn of the 25th century, this model along with its rifle counterpart continue to be standard issue aboard Starfleet vessels and installations.

PHASER, TYPE 3 (RIFLE) (CIRCA 2385)

Like its Type-2 companion, the standard Starfleet phaser rifle also underwent a tactical rethink. An enhanced targeting sight makes the weapon effective at greater distances. This model features a shortened barrel that evokes its predecessor from more than a century earlier, making it more suitable for tactical operations in close quarters situations. Reports from representatives of larger, more-muscled humanoid officers serving in security and tactical detachments indicate the rifle's lighter weight along with its pistol grip makes it more desirable than the standard sidearm.



STANDARD ISSUE PHASER
(MID 23RD CENTURY)

.: FEDERATION STARFLEET – 32ND CENTURY

Advances in weapons design and capabilities leading into this period tended to be driven by necessity in the aftermath of the Burn as well as a return to a militaristic footing in the face of numerous dangers to what remained of the Federation and Starfleet. The proliferation of programmable matter to complement ever-evolving transporter, replicator, and holographic technology aided not just in the design but also the deployment of standard sidearms for all Starfleet personnel, allowing them to bring to bear proportional responses to all manner of threats.

PHASER, TYPE 2 (CIRCA 3189)

This more aggressive-looking weapon echoes design elements of several earlier eras of Starfleet history, including standard handgrip models as well as the lower-profile designs of the mid-24th century. In addition to its normal range of power settings, it can also be configured to serve as a field-expedient dermal regenerator to render emergency first aid. While some pre-manufactured weapons are carried in starship and starbase armories, no longer is it necessary for personnel to draw them. Instead, a pendant worn on the sleeve contains the necessary programmable matter to conjure the phaser with a simple motion that mimics the act of drawing a holstered weapon. This allows for the carrying of sidearms without detection into any number of situations. The phaser can also be expanded to become something akin to the Type-3 phaser rifles of previous centuries.

.: ALLIED ENERGY WEAPONS

Many Federation member worlds and allies have their own particular energy weapons. Following are a few examples.

ANDORIAN PLASMA PISTOL (CIRCA 2150)

Similar to the Earth Starfleet's EM-33, the Andorian version of an electromagnetic weapon fires concentrated bolts of focused high-energy plasma. The pistol's range of intensity settings do not allow for the wider spectrum of options available to Federation sidearms. This includes the notable lack of a stun setting. This model of plasma pistol is also much larger than its counterparts wielded by other races, but easily handled by humanoids possessing greater physical strength. This makes it an ideal weapon for use by members of the Andorian Imperial Guard.

▷ PHASER SETTINGS

Phasers are depicted as possessing a wide range of settings for intensity and beam width, ranging from a light stun pulse that can non-lethally subdue most humanoids for a short time, to precision cutting beams that can burn through tritanium or duranium plating, to devastating blasts that can vaporize solid rock and destroy buildings.

Star Trek Adventures doesn't deal with the specifics of each individual phaser setting. Rather, phasers have a basic severity rating to cover their effectiveness in most situations, the ability to be used for both stun and deadly attacks, and the **Charge** quality representing their flexibility.

A heavier stun setting can be represented by using **Charge** to add the **Intense** or **Piercing** qualities to the attack. A wide-beam stun requires adding the **Area** quality.

Deadly attacks tend to be more akin to the effects produced by a disruptor: severely injurious or deadly to living creatures, and damaging to objects, but not potent enough to blow a hole in the hull of the ship you're fighting on if you miss. More potent blasts use the **Intense** or **Piercing** qualities, while wide-beam or explosive effects likely use the **Area** quality.

For uses outside of combat, merely having a phaser is sufficient to justify uses such as heating objects, cutting through obstacles, or even tunneling through rock. These routine, though extensive uses of higher-powered settings might lead to a phaser running out of power.

Unorthodox uses of a phaser, at the gamemaster's discretion, may require the players to create a trait representing an unusual configuration or modulation before it can be used. Switching to the maximum setting to collapse a building or cause a rockslide might require the gamemaster to devise an alternative improvised attack (see page 242 of the core rulebook). These kinds of highly-destructive uses often come with a large risk of collateral damage, and should be considered **escalation**, adding to Threat when employed.

ANDORIAN PLASMA RIFLE (CIRCA 2150)

Like its pistol companion, this model of rifle delivers a great deal of firepower despite its compact size and modest weight, making it an effective small-arms choice for the Andorian Imperial Guard. Intended for combat, the rifle is generally carried by lower-ranked soldiers and as with the Guard's plasma pistol, it does not feature a stun setting. Rifles of this type were employed to great effect by the Andorians during their war with Vulcan over the annexation of the planetoid Weytahn.

VULCAN PHASER (CIRCA 2380)

Despite their long tradition of pacifism, Vulcans are familiar and proficient with sidearms. As with nearly every other endeavor they undertake, Vulcan phasers possess a straightforward, practical design sensibility which emulates those put forth by their interstellar neighbors with its recognizable handgrip-upper receiver configuration. Though the weapon features power intensities ranging from light stun to disintegration, Vulcans prefer to avoid using the higher settings in all but the most extreme circumstances.

Use the **Energy Weapon Complications** table whenever you need to generate a complication related to an energy weapon.

.:KLINGON EMPIRE

Unlike the Federation, cultures such as the Klingon Empire tend to avoid experimentation and variation with their technology, and this is especially true with respect to the weapons employed by their military. While they do not eschew advances and improvements, when it comes to the physical attributes of their weaponry, Klingons in particular tend to adhere to a fidelity of design which can remain constant for generations.

DISRUPTOR PISTOL (CIRCA 2150)

Even at this point in time the standard sidearm for soldiers of the Empire was a trusted companion. Simplicity of design made it easier for individual warriors to maintain and carry out limited repair. Its power cell was of consistent size and charge that it could also be used in the rifle variant.

DISRUPTOR RIFLE (CIRCA 2150)

This mid-length weapon was designed and suited for close quarters combat situations such as the narrow ship corridors encountered by boarding parties. It featured a small range of power levels but did not include a stun setting. Light enough to be carried and used in singlehanded fashion by average Klingon soldiers, its heft was such that other humanoids struggled with it. This proved advantageous on more than one occasion when warriors of the Empire found themselves face to face with a relentless adversary.

.:ENERGY WEAPON COMPLICATIONS

D20	ENERGY WEAPON COMPLICATION
1–2	Dampening or other energy field inhibits or nullifies the weapon's operation.
3–4	Target is resistant to weapons fire, requiring longer or more forceful engagement.
5–6	Target is impervious to weapons fire, to the point the weapon's power cell is depleted.
7–8	A vital component of the weapon has become damaged or rendered inoperative.
9–10	Weapon's power cell is depleted by an outside influence.
11–12	Weapon's discharge is directed away from the target by an outside influence.
13–14	Weapon's discharge is directed back at its user by an outside influence.
15–16	Weapons is removed from the user and/or destroyed by an outside influence.
17–18	Weapon is destroyed by an outside influence, causing injury or death to its user.
19–20	Weapon is destroyed by an outside influence, causing injury or death to its user and others in proximity.

NICK GREENWOOD

DISRUPTOR PISTOL (CIRCA 2260)

The first major update to this time-tested weapon came following the end of the short yet costly war between the Empire and the United Federation of Planets. A more streamlined silhouette defines this updated model, along with increased power levels and a wider range of intensities. This includes light and heavy stun selections, perhaps a concession based on learned behavior of certain adversaries and the advantage to be gained with an ability to capture and interrogate enemy combatants.

DISRUPTOR PISTOL (CIRCA 2270)

It did not take long for the Empire to attempt improving on the design which had already served them so well, and even served as part of a more extensive technological exchange with the Romulans during this period. This version incorporates a modular design which allows its components to be more easily repaired or replaced without the need for an armorer, facilitating field-expedient weapons maintenance by soldiers engaged in tactical operations. Like its predecessor, the disruptor pistol allows for a range of intensity settings from light stun to total disintegration.

DISRUPTOR RIFLE (CIRCA 2270)

Similar to Starfleet's time-tested practice of integrating its Type-1 and Type-2 hand phasers, the Klingon disruptor pistol of this era could be augmented by the addition of a rifle stock extension. This variation allowed for increased power levels and duration of use by way of a larger power cell. Intended for combat use, this more robust variation was often carried by ground troops, occupation forces, and boarding parties. The extension could be easily removed and carried in a sheath when circumstances warranted a smaller weapon profile.

DISRUPTOR (DISCREET) (CIRCA 2280)

This pocket-sized model of disruptor gained popularity with covert agents in situations where weapons restrictions were more rigorous than on Klingon-controlled planets. Its power level and abilities were largely in-line with Starfleet's Type-2 phaser, offering a similar spectrum of intensity settings that made it ideal for a soldier or agent operating independently. However, this model of disruptor was more susceptible to radiation interference than its larger counterparts, a vulnerability which rendered it inoperative in certain conditions.

DISRUPTOR PISTOL (CIRCA 2360)

Consistent with other aspects of their technology, the disruptor pistol of this era carries forward many of the features of its predecessors. This model benefits from advances in efficiency of power storage and energy transfer while retaining the basic outward design that long ago made it a favorite of Klingon warriors.

DISRUPTOR RIFLE (CIRCA 2360)

Though its profile resembles that of its predecessor from the 23rd century, this model of rifle dispenses with the practice of augmenting a disruptor pistol with an extended weapons stock. Instead, the rifle is a weapon unto itself, carrying forward the original version's versatility and ease of use in restricted spaces. This makes it ideal for assault teams boarding enemy vessels and their unfamiliar interiors but also on the ground when engaged in close quarters combat. The rifle's greater power requirements nullify the advantage of being able to utilize power cells taken from disruptor pistols, and armorers often complain the weapon's induction coils are susceptible to premature burnout if the rifle is operated for a sustained period.

.: ROMULAN EMPIRE

Due to their long-established secretive nature, obtaining useful intelligence about anything pertaining to the Romulans has historically proved difficult, dating back to humanity's first encounters with the enigmatic interstellar power. This has remained largely unchanged in the more than two centuries which have passed since those initial meetings.

DISRUPTOR PISTOL (CIRCA 2150)

The sidearm in widespread use during this period is a low-profile weapon featuring dual barrels in an over-under configuration. The upper, larger barrel channels the more powerful discharge, forming focused plasma into high-energy bolts which are deadly to most humanoid life-forms. The weapon's power level can be increased to bring about disintegration of a target.

DISRUPTOR PISTOL (CIRCA 2266)

As a consequence of an expansive technology exchange between the Klingons and Romulans, Romulan disruptor design carried a heavy Klingon influence during this period. Many of its features mirrored its Klingon counterpart, including its range of power levels and intensity settings.

DISRUPTOR PISTOL (CIRCA 2360)

Breaking away from all semblances of Klingon influence, the disruptor pistol favored by the Romulan military during this period showcased a design that harkened back to their pre-isolation period before the Earth-Romulan War. The pistol's silhouette featured a reinforced handguard below the firing mechanism. Capable of discharging high energy plasma either as focused bolts or a steady stream, the pistol also featured a broader range of power settings, including stun, as well as an ability to set the weapon to overload.

DISRUPTOR RIFLE (CIRCA 2360)

As with its pistol counterpart, the disruptor rifle fielded by the Romulan military during this period carried many of the same design elements. Thin and sleek in appearance, it featured an elongated frame and a forward handgrip joined to the rear grip. Its power range was comparable to the pistol including the stun and overload settings. A bulkier and more powerful version was fielded a decade later, intended for combat operations and hardened for use in a range of atmospheric conditions.

.: CARDASSIAN UNION

Like the Klingons, Cardassians appear to take satisfaction in finding something that works and continuing to improve upon it while maintaining various aesthetics. Starfleet veterans who participated in the Federation-Cardassian War remarked that the Cardassian reliance on proven technology is both a strength and a weakness; the former, because familiarity tends to breed proficiency, and the latter because it invites exploitation. Despite this concern, Cardassian weapons design is as formidable now as it has been for decades.

PHASE DISRUPTOR PISTOL (CIRCA 2366)

Comparable in power and versatility to Starfleet's Type-2 phaser of this period, this weapon proved itself as a trusted sidearm by many a Cardassian soldier. It featured the usual band of intensity settings ranging from stun to total disintegration. If targeted on its highest setting, most humanoid life-forms could be vaporized.

PHASE DISRUPTOR RIFLE (CIRCA 2366)

Following similar design methodology, this rifle offered many of the same features as its pistol counterpart. However, the weapon considerably augmented its range of power levels thanks to an oversized energy cell. Intended as a ground or shipboard combat weapon, the rifle featured dual handgrips at its rear and just behind its plasma emitter. It offered fewer intensity settings than the pistol and was more powerful than Starfleet's counterpart of this era.

.:.THE JEM'HADAR

Considered one of the most powerful and feared military forces in the known Galaxy, the weapons of the Jem'Hadar are as ruthless as their genetically-engineered wielders.

DISRUPTOR PISTOL (CIRCA 2370)

As rugged and formidable as the soldier carrying it, this standard Jem'Hadar sidearm fired phased polaron beams. The weapon possessed a limited number of settings: stun, kill, and total disruption. If a humanoid target somehow survived what should have been a killing shot, the polaron burst contained an anti-coagulant property which forced the adversary to die from unrestrained blood loss.

DISRUPTOR RIFLE (CIRCA 2370)

Larger and more powerful than its companion pistol, the Jem'Hadar assault rifle fired phased polaron beams which killed with even greater efficiency than the sidearm.

.:HIROGEN

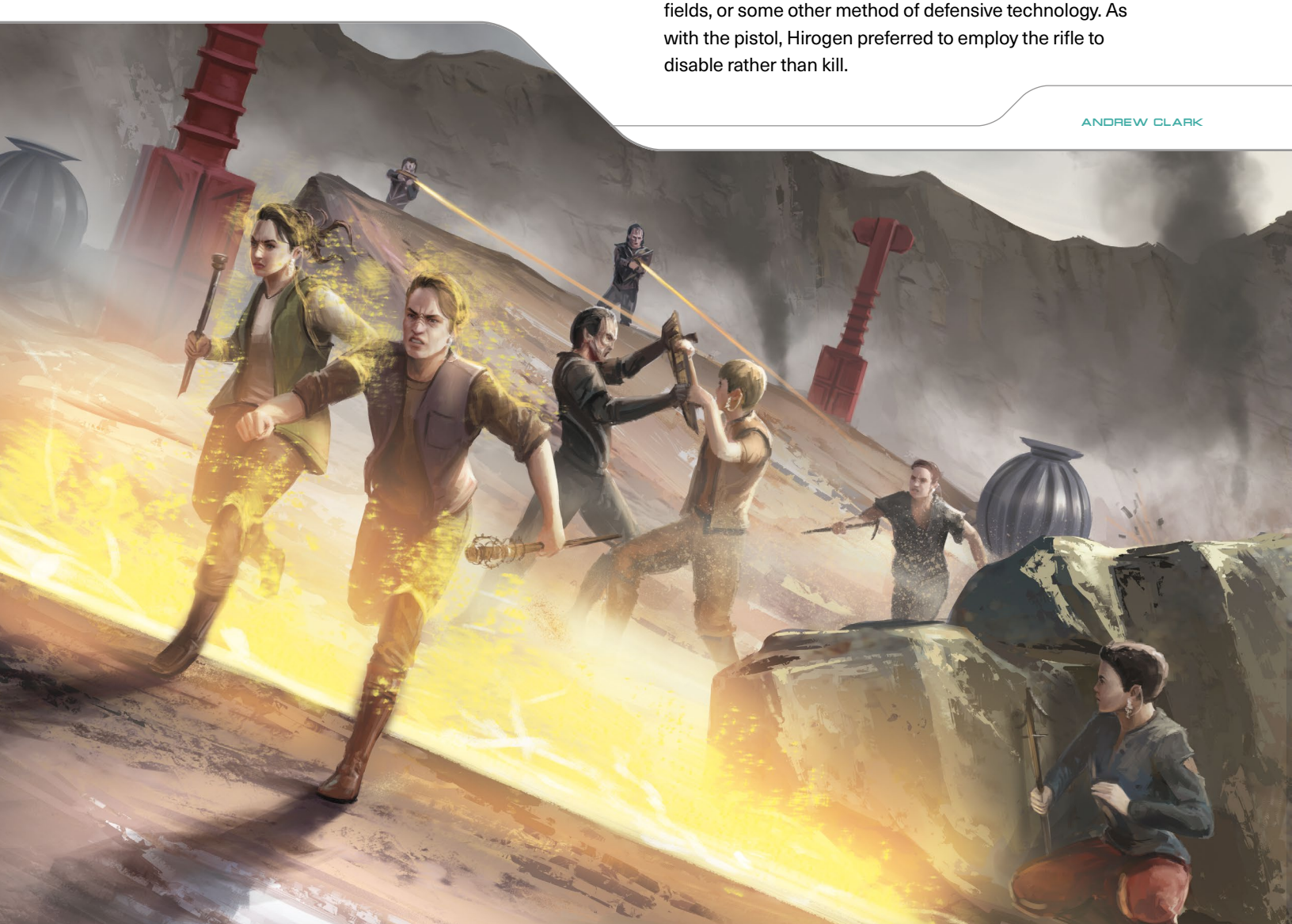
An enigmatic race of interstellar hunters first encountered in 2374 by the *U.S.S. Voyager*, the Hirogen employed a variety of weapons in pursuit of their "sport." Unlike many energy-based weapons, those employed by the Hirogen were not primarily intended to be lethal. Instead, they were a tool to facilitate their hunts so their prey could be captured and dispatched in ritual fashion.

TETRYON PISTOL (CIRCA 2374)

Similar in form and function to phasers and disruptors employed by various civilizations, this pistol was effective against all manner of targets. It fired streams of compressed tetryon radiation which disrupted energy fields and as well as the nervous systems of humanoid prey without being fatal, allowing the Hirogen to finish their hunt with a proper, ritualistic kill.

TETRYON RIFLE (CIRCA 2374)

A larger, more powerful form of compressed tetryon weapon, Hirogen used the rifle when hunting larger prey including those who employ body armor, personal force fields, or some other method of defensive technology. As with the pistol, Hirogen preferred to employ the rifle to disable rather than kill.



ANDREW CLARK

TACTICAL GEAR

THE CONCEPT OF BODY ARMOR IS COMMON WITHIN the histories of numerous ancient civilizations. On Earth, the Egyptians, Greeks, and Sumerians were among the first to develop such protective apparel, which usually included torso protection and helmets. Later enhancements sought to protect extremities. As weapons technology advanced, so too did the means of protecting warriors.

In an age of directed and focused energy weapons that exhibit truly staggering levels of destructive power, it seems odd to even consider the notion of wearing body armor in the hopes of resisting, let alone defeating, an attack from such a weapon.

However, even with these considerations in play, it's worth remembering a number of alien societies still employ and hold in high esteem edged or other melee weapons. Many of these civilizations' military forces opt to carry such implements into battle, and this foresight is often rewarded if the fighting deteriorates to close quarters or even hand-to-hand combat. As a consequence, many of these cultures also cloak their soldiers in personal armor in expectation of defending against attacks of this sort. The Federation and Starfleet have been the unfortunate recipients of such severe lessons in engagements against the Klingons and the Cardassians.

Starfleet made use of personal body armor in the second half of the 23rd century, issuing tactical vests to security members and away team personnel as circumstances warranted, particularly during the Federation-Klingon War. Body armor became bulkier by the mid 2270s, adding a helmet and groin protection, though this format saw limited use outside security personnel. The organization experimented with personal force fields in the early 2270s, providing life support functions without the need to wear a full environment suit. Starfleet moved away from utilizing body armor by the 24th century, though harsh teachings from various conflicts required the organization to vow to be better prepared for future engagements against hostile cultures. As a result, Starfleet security and tactical forces still rely on body armor in certain limited situations.

Klingon warriors have worn armor as part of their uniforms for centuries, in keeping with their society's continued penchant for close quarters combat and the honor of meeting their enemy face to face. **Cardassian** military members wear heavy armored tunics more out of tradition than due to any practical benefit, as they prefer modern ranged weapons to close quarters battle. Elsewhere, the **Hirogen** employ body armor to defend themselves from some of the most unforgiving environments imaginable as they pursue their hunts.

By the 32nd century, personal and area force fields are utilized by many cultures. The force fields can protect against many forms of directed energy weapons, as well as projectiles and explosives along with transporters used to deliver ordnance into an otherwise secured area. Even these measures have their limits, as they are subject to power loss or interference, or by being overwhelmed by sustained weapons fire or explosive bombardment.

.:PERSONAL LOG

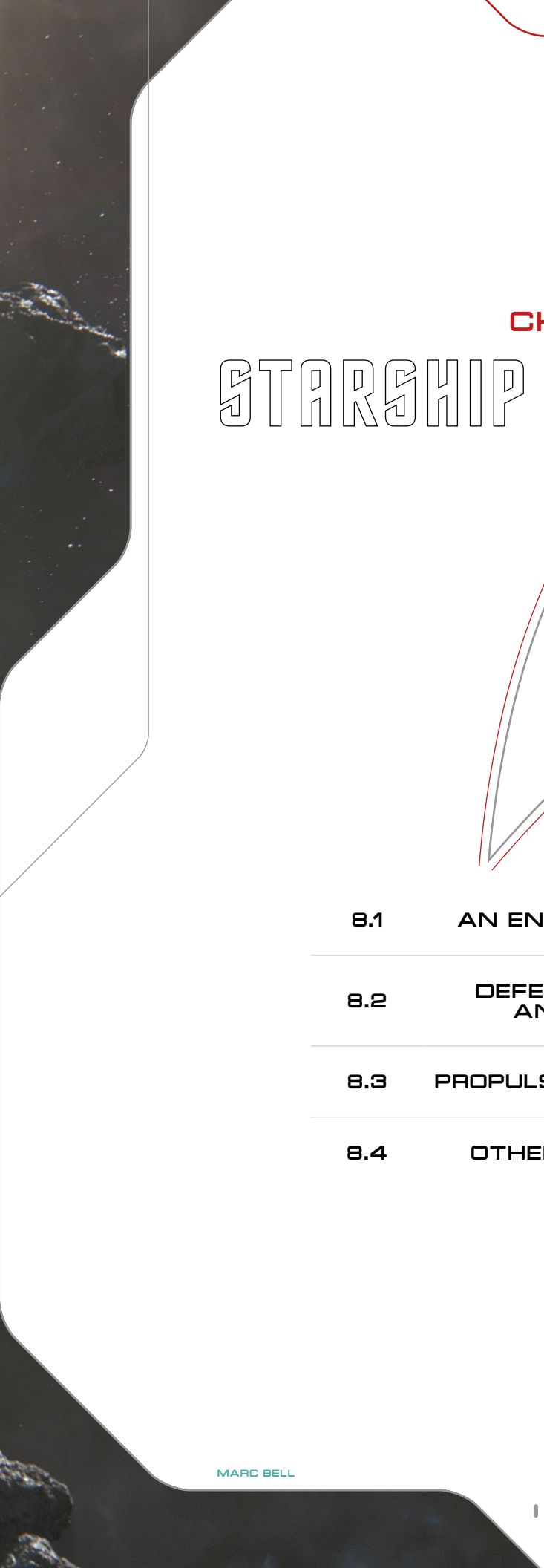
ENSIGN LANIYAR TENNAN

I think we're out of time.

Sensors detect three ships approaching from the planet. Traveling at just over warp one, they'll be here in less than five minutes. Tactical scans show each vessel is outfitted with a quartet of what look to be particle-beam cannons. The weapons are shielded, so we can't get detailed readings. What kind of damage can they do? As for the people on those ships, we don't even know what to call them, or what they call themselves.

We're on yellow alert. Our shields are down and our weapons aren't active. Our scans show their own sensors can see that. Commodore Xen thinks it's the best message we can offer for the moment. Everyone's on edge. Security teams are on standby in the event of a boarding attempt. It all seems so surreal.

I feel useless. Will I be able to read their thoughts? If we can't close the language gap, might that be a way to communicate?



CHAPTER 8

STARSHIP TECHNOLOGIES

8.1	AN ENGINEER'S DOMAIN	108
8.2	DEFENSIVE SYSTEMS AND WEAPONS	110
8.3	PROPULSION TECHNOLOGIES	115
8.4	OTHER SHIP SYSTEMS	121

MARC BELL

.:CHAPTER 8.1

AN ENGINEER'S DOMAIN

"ALL I ASK IS A TALL SHIP AND A STAR TO STEER HER BY."
- DEDICATION PLAQUE, U.S.S. DEFIANT NX-74205

RODRIGO GONZALEZ TOLEDO

LIEUTENANT COMMANDER BURK VEN JAXA

The first thing new engineers get wrong is thinking every system on a starship is tied together in a way that's easily understood. Maybe straight out of the shipyards it is, but, after each assignment, a starship is patched together in ways those yard apes would cry themselves to sleep if they ever saw.

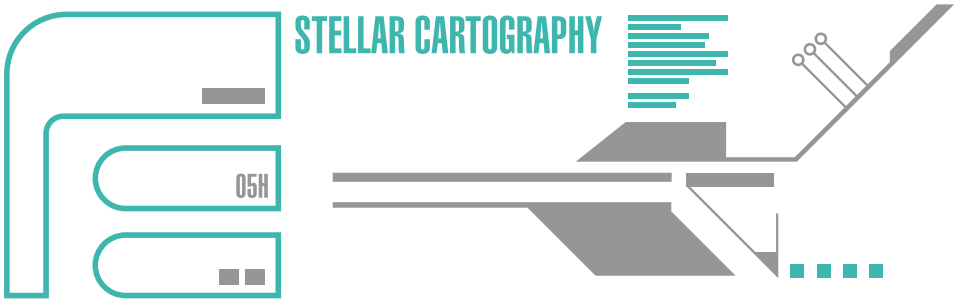
STARSHIPS ARE INCREDIBLY COMplex amalgamations of technology and every system that makes them function changes rapidly through time, and is highly dependent on the culture building them. All starships encountered across the Milky Way and beyond have certain aspects in common. Following is a brief discussion on each of the four main categories of starship technologies.

DEFENSE AND OFFENSE

THE FIRST BROAD CATEGORY INcludes **active defenses** and **offensive technologies**. Active defenses include systems such as deflector arrays to protect a vessel from debris impact while at warp as well as defensive shielding. Energized hull plating and even ablative armor also fall into this category. Weapon systems are commonly found in two main formats: a relativistic beam weapon using particles or radiation to strike a target, and guided weapons similar to photon torpedoes used while moving at superluminal velocities. **Beam weapons** can be as simple as chemical lasers using cryogenic material expended in their use to chroniton beams capable of ripping space-time apart on impact. **Guided weapons** can range from chemical rockets using low-velocity explosives to quantum torpedoes using the power of virtual particles to erupt into space-time.

PROPULSION TECHNOLOGIES

THE SECOND BROAD CATEGORY OF systems include **propulsion** and **power**, both of which are intertwined. Most starships encountered in the Milky Way utilize an antimatter warp core to power warp drive, though exceptions include ancient Bajoran solar sail vessels and Romulan artificial singularity power plants. Secondary power and propulsion are often much less powerful reactors and methods, fission or fusion reactors powering regular reaction mass rockets, or more advanced impulse drives.



LIFE SUPPORT

THE THIRD CATEGORY OF SYSTEMS SERVE TO KEEP A crew alive, collectively known as **life support**. Every starship consists of an outer hull meant to protect the crew from hazards external to the vessel, such as debris or radiation. All starships require life support systems to keep the crew alive in whatever environment they normally are most comfortable in—sometimes more than one. Most larger starships also have a dedicated sickbay or medical ward to tend to crew injuries and illnesses, though smaller vessels may only have a section where medical supplies are stored.

SENSORS AND COMMUNICATION

THE FOURTH CATEGORY INCLUDES **SENSORS** AND **communications**. From the earliest optical telescopes and lookouts perched high above the water of ancient sailing ships, crews have always needed to see where they were going and what was on an undiscovered shore. Starships have advanced these methods to using powerful electromagnetic (EM) and subspace sensors that can peer light-years away from a vessel. Similarly, advancements in communications technology have made it so starships can communicate at extreme distances.

The following subchapters provide broad overviews of these starship technologies, how they function, and ways they might create challenges for your crew.

JENS LINDFORS

.:CHAPTER 8.2

DEFENSIVE SYSTEMS AND WEAPONS

"POG WILL KEEP BLASTING, BUT AT THE MOMENT CAN ONLY LOWER SHIELDS LONG ENOUGH TO BEAM US OVER ONE AT A TIME."

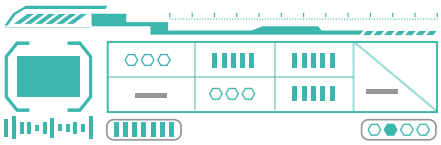
- JANKOM POG

LIEUTENANT COMMANDER BURK VEN JAXA

While material science continues to produce stronger and more difficult to work with substances that can stand up to punishment, they don't improve at the same rate as a weapon system's ability to damage a target. Defensive fields, deflector arrays, structural integrity fields, and inertial dampers improve at almost the same rate as weapons systems. Anything that saves my work crews from spacewalks where we have to bolt on more ablative armor every time we encounter the Klingons is good in my book.

RODRIGO GONZALEZ TOLEDO

THIS SUBCHAPTER PROVIDES AN overview of key defensive systems and weapons in use by spacefaring civilizations.



SHIELDS

The ship's defensive shielding is important in many situations outside of the most common use in combat. Defensive shielding uses force fields to surround the ship in a bubble that can protect it against incoming objects and energy weapon strikes. It does this through the generation of an area of spatial distortion via directional subspace field coils, and producing a graviton flux over and through the field. This allows defensive shields to bend radiation and high-energy particles away from the ship and to move a physical object such as a torpedo around the vessel with spatial curvature, or to destroy it via spaghettification inside a highly-localized region of bent space-time.

While the navigational deflector has to operate continuously at high energies while at warp, shield generators are designed to handle heavy energy loads for short durations, such as with a phaser or disruptor strike, or the detonation of an antimatter warhead inside the defensive field. Dissipation of the directed energy through radiation, particle, or kinetic weapons is accomplished by the system negating the energy, degrading the system as it must recharge. This means that while shields may be powerful and protect a starship against threats that could crack a planet, they also are not impervious and are quickly worn down.

Like the deflector array making regions permeable to ionized hydrogen, defensive shields can also be made permeable to large objects such as shuttlecraft by opening a region in the compressed space-time field. Weapons fire can be allowed to exit shielding as the computer can calculate a weapons trajectory and drop the shields the moment the beam or torpedo moves through the region. Transporters are unable to function with shields up as the amount of data transmitted through subspace makes even tiny distortions deadly to life-forms passing through, and often scrambles inanimate objects irrevocably.

Use the **Defensive Shield Complications** table whenever you want to randomly generate a problem with the shields.

▷ NON-FEDERATION DEFENSIVE SHIELDS

Most of the spacefaring civilizations in the Orion Spur utilize similar shielding to the Federation, but polities further afield have developed defensive technologies different from the norm. Some examples include:

- **Chronometric shielding** uses entangled tachyons and tetryons to pull a ship slightly out of normal space-time, causing the vessel to both be unaffected by changes in the timeline, but also to 'move' away from attacks against it by shuffling forward or backwards in time momentarily to avoid the weapons strike entirely.
- **Covariant shields** utilize tetryon-based interference to scatter incoming EM and subspace energy and scramble torpedo targeting systems.
- **Metaphasic shielding** was developed by the Federation, but only put into use at the beginning of the 25th century. This shielding uses space-time harmonics to produce a region where space vibrates between two phases of gravimetric 'slope', trapping and then expelling any matter or energy from its field.
- **Point defense systems** can shoot down incoming torpedoes or put up enough material to block an energy weapon attack. These systems lose effectiveness as they run out of ammunition or their targeting systems are overwhelmed.

.: DEFENSIVE SHIELD COMPLICATIONS

D20	DEFENSIVE SHIELD COMPLICATION
1–2	A random ion surge from a nearby star overwhelms the shields and causes an EPS rupture in connecting systems.
3–4	The shields are unable to prevent large sublight moving objects from passing through, including torpedoes.
5–6	Damage to the shield emitters is making the whole bubble strobe softly, outlining the shape of the bubble and giving clues to the modulation currently used.
7–8	The shields are collecting dust and gas along its outer edges as it ionizes the particles.
9–10	The shields interfere with subspace sensors, reflecting the sensor beams back at sensor pallets on board.
11–12	The shields are stuck on and are preventing all EM radiation from penetrating and blotting out the universe beyond the shields.
13–14	The shield grid modulation controls are damaged, and the shields randomly rotate through different configurations while in combat.
15–16	The EPS grid tied to the deflector shields is damaged, and only allows 50% of the starship to be covered at any given time.
17–18	Deflector shield controls have been fused and shields are unable to have their shape harmonics modified.
19–20	The vessels' deflector shields flicker from damage, allowing portions of incoming weapons fire to pass through.

NAVIGATIONAL DEFLECTOR

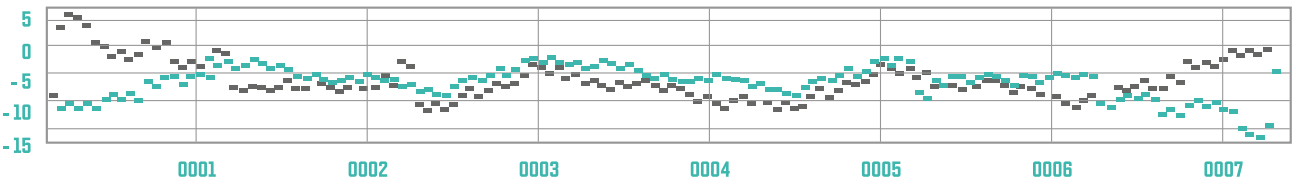
THE NAVIGATIONAL DEFLECTOR IS POSITIONED near the fore of most warp vessels and comes in many designs, but the principle remains the same. The system generates polarized gravitons that are then fired forward of the ship using energy shields, such as the ship's main defensive shielding, and subspace field amplifiers. The graviton beam then sweeps ahead of the vessel by thousands of kilometers, extending past the ship's warp field through the subspace distortion, and pushes aside any atoms and small particles in the vessel's path.

The deflector array ionizes hydrogen atoms, and with precise computer control, allows the ionized atoms to pass through regions where Bussard ramscoops can collect the particles. The navigational deflector requires very little power while at sublight speeds, but exponentially more as warp speeds increase as the subspace field needed to push the graviton beams further from the ship must become more powerful. This means the deflector array has some of the most robust EPS connections in the ship, and has the most inherent backups outside of a warp core as no crew wishes to lose the navigational deflector while at warp. The deflector array also may be used to enhance defensive shielding during combat.

Use the **Navigational Deflector Complications** table whenever you want to randomly generate a problem with the navigational deflector.

.:NAVIGATIONAL DEFLECTOR COMPLICATIONS

D20	NAVIGATIONAL DEFLECTOR COMPLICATION
1–2	The navigational deflector is improperly ionizing material in front of the starship.
3–4	The deflector isn't synchronized with shielding, lowering defensive effectiveness.
5–6	The deflector is non-operational, resulting in the need to use defensive shielding to travel at a lower cruising warp.
7–8	A power surge burns out the main deflector and causes a cascading plasma explosion.
9–10	The main deflector interacts with a nascent subspace fracture and opens it directly in the path of the starship.
11–12	The deflector isn't operating at peak efficiency and the ship's Bussard ramscoops have become clogged with interstellar dust.
13–14	The navigational deflector stays at full warp power when the ship leaves warp near a planet, the beam ripping through its atmosphere and causing a colossal thunderclap for all on the surface before it can be shut down.
15–16	The deflector encounters an undetected dense cloud of interstellar gas, ionizing it but not moving it out of the way fast enough, causing radiation conditions in sections on the forward bow.
17–18	Intercoolers tasked with maintaining standard operating temperatures have failed for the main deflector while at warp.
19–20	A microgram mass of antimatter is ionized by the deflector and attracted to the beam, impacting the ship and detonating with the force of a small atomic warhead.



ENERGY WEAPON SYSTEMS

THE TWO PRIMARY ENERGY WEAPONS ENCOUNTERED in the Orion Spur are **phasers** and **disruptors**. Phasers, or Phased Energy Rectification, is a beam weapon system mounted on hardpoints, smaller swivel mounted emplacements called banks, or in arrays of emitters developed in the early 24th century. The phaser beam is produced by a rapid nadion effect, and nadions are able to affect the strong nuclear force that holds baryonic matter together. Power is provided by either the starship's main power supply through its EPS network, or by independent fusion reactors dedicated solely to powering the weapon system. Both types of power have benefits, with being tied directly to the mains allowing for more output to be channelled into the phaser beam, while an independent power supply allows phaser systems to continue to operate even if main power is unavailable.

A phaser beam is produced when power is pushed into a phaser emitter. Magnetic baffles force the plasma into the prefire chamber where the nadions are produced. The nadions are released along with charged particles to form the phaser beam which propagate towards a target at the speed of light. This light speed limitation makes phasers less useful while at warp speeds as the beam itself would only travel to the edge of the warp field before bending and dissipating. However, while at sublight speeds, phasers are incredibly useful as their discharge frequency can be modified, allowing the beam to pass through a target's shields if exactly tuned to its recharge frequency, or for the nadions to produce low amperage ionic discharges at the target, effectively allowing a shipboard weapon to stun biological targets. Phasers can even be modified to discharge in short bursts as a highly effective point defense system.

Disruptors operate in a similar manner to phasers, but have much different end results. A carrier beam, often of a simple EM or subspace field energy, is emitted instead of a nadion beam. Particles are then injected along the beam, pushing them at the target at near the speed of light. These particles are often minute amounts of antimatter, highly ionized and near speed of light subatomic particles, short lived tetryons, or a mixture of many particles and effects. The result is a highly destructive blast that tears apart a target both thermally and kinetically. As many disruptors use multiple particle types, few materials can protect themselves fully against a disruptor attack.

Use the **Energy Weapons Complications** table whenever you want to randomly generate a problem with starship-mounted energy weapons.

.:STARSHIP ENERGY WEAPONS COMPLICATIONS

D20	STARSHIP ENERGY WEAPONS COMPLICATION
1–2	Fast acceleration at sublight speeds makes targeting with phasers difficult.
3–4	The deflector shields and phasers are not perfectly synched and nadions burst against the inner surface of the shields.
5–6	Damage or long service life has made the phaser emitters slow to charge.
7–8	Damage or long service life has made the phaser emitters fluctuate their discharge frequency more than tolerance.
9–10	A target is able to, or accidently, intersperses its impulse engine subspace field in the path of a phaser strike, dispersing and weakening the hit.
11–12	Damage causes the phaser capacitors to accidently discharge, causing a phaser emission into habitable space.
13–14	Damage or ship's nacelle placement cause a target to pass into a blind fire area for the ship's phaser system.
15–16	Pre-fire EM emissions from damaged or faulty phaser systems allow a target to anticipate a phaser strike.
17–18	A phaser emitter explodes rather than properly discharges, causing a breach.
19–20	The nadion discharge of a phaser burst interacts with the ship's navigational deflector, causing a dispersion of a portion of the beam's strength.

TORPEDO WEAPONS

PHOTON TORPEDOES ARE A STARSHIP'S OTHER PRIMARY weapon system. These devices can be preprogrammed with targeting data before launch, or use onboard targeting systems to help find a difficult to hit target. Photon torpedoes can be used while a ship is at warp, as these weapons have warp field sustainers, which allows the torpedo's own propulsion to both fire away from a starship, but also strike at another starship also at warp as long as speeds are similar.

Once launched, the torpedo tracks to a target with its onboard limited duration impulse drive. The torpedo either breaks up on impact, or its sensors destroy the torpedo itself against a target's shields, and then the warhead detonates. The warhead consists of antimatter which immediately reacts with the matter of the torpedo, resulting in a colossal burst of gamma rays, highly ionized particles of the former torpedo casing, and extreme thermal shock with an equivalent power of approximately 50 megatons of TNT, or approximately the largest thermonuclear weapon ever tested by humanity during its violent 20th century.

Torpedoes, like phasers, can be used in many ways. Torpedoes can be modified into probes. For short-range probes the warhead is replaced by a larger fusion reactor and more deuterium to power the probe's impulse drive, and targeting sensors are replaced with any number of sensor platforms the crew wishes to use. Longer duration or long-range probes are outfitted with larger warp coils that allow the torpedo, when fired at warp, to sustain its speed and trajectory for hours or days. These long-range probes also are powered by a larger fusion reactor and are packed with longer range comms systems to allow greater amounts of data to be returned.

Use the **Torpedo Complications** table whenever you want to randomly generate a problem with torpedoes.

.: TORPEDO COMPLICATIONS

D20	TORPEDO COMPLICATION
1–2	High warp velocities make the warp field stabilizers in a photon torpedo unable to produce as much extra velocity than usual.
3–4	A photon torpedo detonation near a strong magnetic field causes an accumulation of highly charged particles and can cause an EMP in less advanced technology.
5–6	The loading mechanism for the antimatter warhead in torpedoes is damaged and lim-iting the starship's firing rate.
7–8	Safety measures to prevent the detonation of a torpedo too close to the launching starship fails, causing damage to the launching vehicle.
9–10	Loading the antimatter warhead fails, and a detonation occurs in the launch systems, taking out the entire system and damaging nearby sections.
11–12	Automated torpedo navigation systems are slow to react and interact with the ship's main deflector array, causing the torpedo to veer off course.
13–14	Rapid warp speed changes make a torpedo unable to properly strike its target, glanc-ing off before detonating.
15–16	The detonation of a torpedo while the ship is at warp causes a small space-time ripple that is unexpected enough that both the target and launch vessel are knocked out of warp.
17–18	Volley firing torpedoes causes interference in targeting systems onboard the torpe-does.
19–20	The torpedo is unable to independently target and track, requiring a weapons officer to direct the torpedo.

.:CHAPTER 8.3

PROPULSION TECHNOLOGIES

"NO MATTER WHERE YOU GO, THERE YOU ARE."
- DEDICATION PLAQUE, U.S.S. EXCELSIOR NCC-2000

THIS CHAPTER DISCUSSES THE TWO primary forms of starship propulsion: **sublight** and **faster-than-light (FTL).**

All spacefaring civilizations use the two forms of propulsion, usually with modest differences in hardware.

SUBLIGHT PROPULSION

SUBLIGHT PROPULSION RELIES ON the ancient axiom of 'for every action, there is an opposite and equal reaction'. These propulsion systems expel matter and energy to push a starship through space at slower than light velocities.

.:REACTION CONTROL SYSTEMS

Reaction control systems (RCS) are the first form of sublight propulsion usually developed by spacefaring civilizations. These systems are fuelled by multiple kinds of compressed gasses and liquids, typically excess helium from the ship's fusion reactors as well as captured unusable gasses from the Bussard collectors. Many polities began to have their RCS thrusters in the 24th century utilize their own independent fusion reactors, using the resulting helium plasma and injected extra deuterium as reaction mass to push starships around. No matter how they are powered, RCS thrusters are low thrust, highly controllable systems that utilize Newtonian physics to provide accurate and precise adjustments to the ship's pitch, yaw, and roll.

RCS systems can be found on nearly every vessel in the Orion Spur, even on large structures such as starbases. Starbases can use many methods of powering their RCS systems, such as utilizing waste heat to power highly efficient ion thrusters that keep the stations in precise orbit. Shuttlecraft use their ramscoops in an atmosphere to store and compress gasses for later use in the shuttle's thrusters.

▷ NON-FEDERATION REACTION CONTROL SYSTEMS

Reaction control systems can vary significantly between polities based on what type of fuel is used and how it is pressurized or expelled. The polities near the Federation, such as the Klingons and Romulans, utilize hydrogen or deuterium as reaction mass gathered from interstellar space. Less technologically developed polities may use the same material, but only expelled via releasing the pressurized gas rather than heating the material via the ship's plasma network. Early spacefaring societies may even use a system similar to what was used on the 20th century Earth NASA orbiter that combined hydrazine and an oxidizer to produce thrust.

LIEUTENANT COMMANDER BURK VEN JAXA

The captain on my first starship asked me, "What's more important, warp drive or life support?" Without hesitation, I said, "Warp drive. If your life support gives out a few hours at warp from a Class-M planet, you can get there before you run out of oxygen. If you're light-years from the closest planet and are stuck without warp drive, all the air in the universe isn't going to solve spending the next twenty years in a tin can with people you can barely tolerate."

That captain started spending a lot more time making sure the engines were running just fine.

RODRIGO GONZALEZ TOLEDO

PIERRE DROLET

Use the **Reaction Control System (RCS) Complications** table whenever you want to randomly generate a problem with the reaction control system.

.:REACTION CONTROL SYSTEM (RCS) COMPLICATIONS

D20	REACTION CONTROL SYSTEM (RCS) COMPLICATION
1–2	RCS thrusters misfire on the port side, making the ship drift.
3–4	The RCS reaction mass pumps are out of alignment and make a roaring sound in nearby quarters.
5–6	Damage to reaction mass feed lines causes hydrogen or caustic compound leakage into the habitable volume of the vessel.
7–8	Feed lines are severed in damaged sections, giving helm control difficulties in maintaining pitch, roll, or yaw.
9–10	Hull damage allows breathable atmosphere to leak into the RCS manifolds, igniting the mixture and producing brilliant exhaust plumes.
11–12	RCS reaction mass is accumulating on the exterior of the ship, causing interference with the sensor systems.
13–14	Reaction mass tanks are hit during combat, exploding and breaking away a section of the hull that otherwise would have remained intact.
15–16	The reaction mass tanks have become a habitat for space-based microorganisms.
17–18	Overuse in heavy maneuvering has depleted the RCS tanks faster than they can be replenished.
19–20	Phaser output is diminished due to dense clouds of RCS propellant around the ship.

.:IMPULSE DRIVE

The impulse drive is the primary form of propulsion a starship uses at sublight speeds. It typically consists of a series of interlinked fusion reactors that 'burn' deuterium (heavy hydrogen) in a reaction that produces Helium-3 and an incredible amount of energy. Some polities prefer to use tritium when that is available in large amounts. It is theorized some fusion reactors could be designed to utilize minute amounts of antimatter to inject into the fusion plasma as a sort of 'afterburner' to increase power output further.

Outside of propulsion, this energy is used to power ship systems except during high demand times such as under heavy maneuvering, high velocity warp travel, and combat. The Helium-3 (along with other excess gas collected via the Bussard ramscoops) is then expelled from the impulse engine via additional acceleration due to standard magnetic field compression and expulsion, as well as subspace driver coils, pushing the velocity of the exiting particles to near the speed of light. This is why many polities require starships to only use thrusters while in a spacedock or another enclosed environment.

The resulting ionizing radiation surge and high velocity particles can cause severe damage to both equipment and biological material.

In order to limit relativistic effects, as well as limit the damage particle impacts can do and doppler shifted radiation, most polities limit sublight velocities to between 0.25 and 0.33 times the speed of light, depending on local gravimetric conditions. Under relativistic conditions getting closer to the speed of light, time in the outside universe appears to move faster to a crewmember on a starship. While safety is key, it is possible for the crew of a starship to be unable to react quickly enough to a problem if their reaction times are slowed by near c operations. Even with these limitations, an impulse drive can move a starship from the Earth to the Moon in 21 seconds, or take a trip to Saturn from Earth in a little more than 4 hours.

Use the **Impulse Drive Complications** table whenever you want to randomly generate a problem with the impulse drive/sublight drive.

.:IMPULSE DRIVE COMPLICATIONS

D20	IMPULSE DRIVE COMPLICATION
1–2	Fuel is low for the impulse reactors, reducing efficiency and sublight acceleration.
3–4	Subspace acceleration fields for the impulse drive are out of alignment.
5–6	The impulse manifold is jammed, causing the ship to be unable to decelerate without flipping over and performing a deceleration burn.
7–8	Damage to the subspace accelerators has caused the field to flip and are acting as a sublight 'anchor' on the ship.
9–10	Sublight limiters have been damaged and the impulse drive stuck on full, causing the ship to push closer to the speed of light and causing heavy relativistic effects.
11–12	Structural integrity field response time to impulse acceleration isn't properly adjusted, causing one g acceleration effects inside the starship when in use.
13–14	The magnetic bottle containing the highly-energized plasma of the fusion reactors has cracked and is venting plasma into space.
15–16	Subspace acceleration fields are out of alignment and are causing time distortions near the main impulse deck.
17–18	Near speed of light impulse exhaust is misdirected due to manifold damage and irradiates a section of the starship's hull.
19–20	Local space-time is making forming a subspace field difficult, reducing the efficiency of the impulse drive's ability to accelerate.

FASTER THAN LIGHT PROPULSION

ALL FASTER THAN LIGHT PROPULSION TECHNOLOGY encountered in the Orion Spur utilizes different methods to manipulate subspace and the fabric of space-time, bending it in such a way as to either allow the vessel to tunnel through different regions of space-time, or to travel along the surface of space-time in a 'bubble'. Regardless of how it is accomplished, these systems are often a starship's most complex and energy demanding systems.

.: WARP DRIVE

Warp drive is a term for many different forms of faster than light propulsion relying on the warping of space-time via the generation of a subspace field. Many civilizations utilize a matter/anti-matter core where the annihilation reaction is moderated by a dilithium crystal for powering a warp drive. Early M/AM cores didn't utilize dilithium, such as on Cochrane's famous vessel *Phoenix*, and it isn't required. In fact, Romulan warp drives that utilize an artificial singularity are able to channel the resulting plasma without dilithium.

What dilithium does for a warp core is become porous to antihydrogen and antideuterium when put under an intense electromagnetic field, and thus allows the construction of much smaller and more energy efficient M/AM cores. The resulting **warp plasma** is then channelled along magnetically constricting **power transfer conduits** to the vessel's **warp nacelles**, which contain the actual propulsion systems that move the starship through space at faster than light speeds. The plasma from the warp core is injected into **warp coils**, and from the subspace field generated, faster than light propulsion is achieved.

In the 23rd century, a *Constitution*-class starship had a cruising speed of warp 6, or 216 times the speed of light. At that speed, travelling from Earth to humanity's nearest colony world around Proxima Centauri would take a little more than a week. In the 24th century (and with a revised warp scale), a *Galaxy*-class vessel cruising at warp 6, or 392 times the speed of light, would take just under 4 days.

.: OTHER FORMS OF FTL PROPULSION

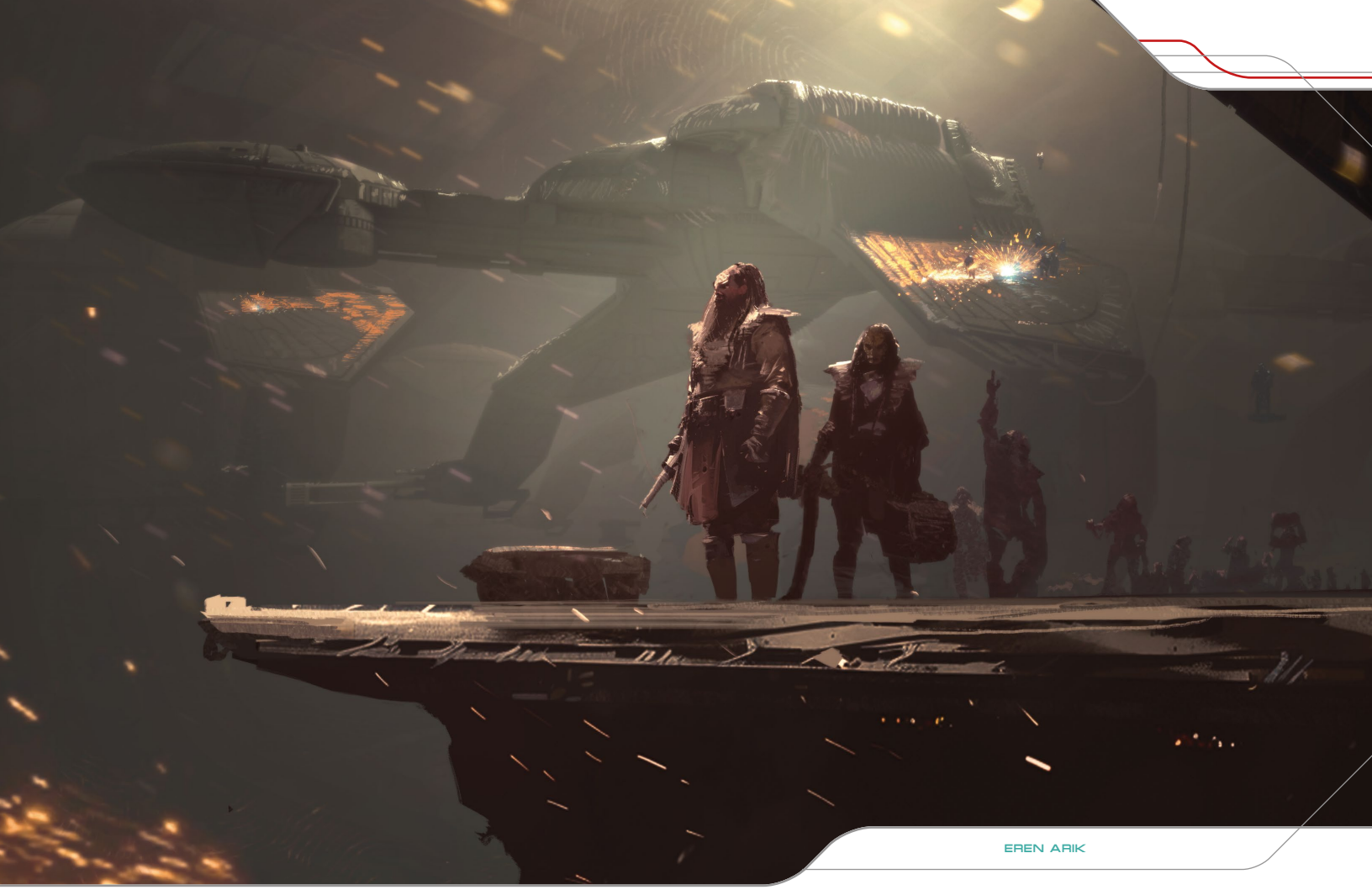
There are many forms of warp travel, and even faster velocities have been achieved through **transwarp drives**, **transwarp conduits**, and even **slipstream drives**. Each form of faster than light travel requires more energy and different rare elements and compounds that are difficult to manufacture. A transwarp drive takes a vessel out of normal space-time and allows it to travel through a nearby layer of subspace at much higher velocities than standard warp. Transwarp conduits are semi-permanent tunnels through deeper layers of subspace, allowing exponentially higher realspace velocities and are capable of allowing a starship to transit the Milky Way in hours. See page 19 for more information on other forms of warp travel and how they might be used in the game.

One other use of warp propulsion is for **temporal acceleration**. Normal warp propulsion bends and changes space, but it can also be used to affect time, as space and time are intrinsically linked. This is done in 24th century starships by forming a weak subspace field around the ship's computer core, effectively accelerating time inside the field and improving computer processing time. As causing differences in the temporal flow rate is as trivial as producing a bend in space, nearly all Starfleet personnel are trained in how to avoid producing a wormhole effect from an imbalanced warp field, or producing movement through time.

Changing space-time is also a way to manipulate the basic fundamentals of the universe, and unwary Starfleet personnel can open rips in space-time, form new micro-universes, or damage space-time enough that warp travel and faster than light communications becomes impossible.

▷ NARRATING WARP SPEED

There are numerous references to warp speed throughout this supplement and other *Star Trek* reference material. Note the warp scale changes after the 23rd century. Warp 8 is a slower multiple of the speed of light in the 23rd century than it is in the 24th century and beyond. Warp speed is generally important when two starships are chasing each other or when a starship needs to get to a location quickly, and even then, the needs of the plot dictate the speed of the vessel. Don't get bogged down in calculating realistic travel times; just go with what makes sense for your narrative.



EREN ARIK

▷ NON-FEDERATION FTL PROPULSION AND POWER

We have encountered many different kinds of main power systems and FTL propulsion in *Star Trek* over the decades. A full guide to the technical details for them could fill this entire volume, so the following summary should prove useful.

Ancient Bajoran solar sail starships included both a power generation system and propulsion method that used collected radiation and tachyon eddies to generate energy and provide a miniscule acceleration to the vessel. The power generated produced a weak subspace field that accelerated a vessel faster than the speed of light.

Power systems can include a naked artificial singularity that the Romulans utilize, negating the need for dilithium as plasma is generated directly from infalling matter and from outgoing Hawking radiation. Borg subspace taps and self-powering transwarp coils use the differential in potential energies between different layers of subspace to produce incredible amounts of power. Certain species may utilize fusion or even fission reactors as their main power source. Each one of these can power a warp drive, just at lower velocities and efficiencies.

As there are numerous power plants, there are many kinds of warp propulsion. Monopolar warp fields such as what many Klingon bird-of-prey designs use as well as Vulcan ring ships use flat plates to generate a subspace field. The field is more rigid and less adaptable to steep space-time gradients, but use less power than standard warp coils. Transwarp is an order of magnitude faster than warp speeds and are used by the Borg and the Voth, and related transwarp conduits are even faster, but require permanent structures to be constructed in deep subspace layers and are typically only used by the Borg. Transwarp beaming, soliton waves, quantum slipstream drives, and null-space graviton catapults are also viable methods of moving among the stars.

Use the **Warp Drive Complications** table whenever you want to randomly generate a problem with the warp drive/FTL drive.

.: WARP DRIVE COMPLICATIONS

D20	WARP DRIVE COMPLICATION
1	The warp coils are out of alignment, requiring constant helm inputs.
2	Undetected damage to the port warp coils results in the warp field having torsion, making the starship roll while at warp.
3	Subspace compression causes time to pass more slowly the closer you are to the engines.
4	Fused warp coils interrupt the plasma flow, preventing the ship from entering warp.
5	The starship experiences temporal distortions while trapped in a superluminal tunnel or wormhole.
6	Lagging adjustments to the warp coils make traversing turbulent space-time shake the ship as though it were under weapons fire.
7	Failure in warp coil manufacturing reduces the cruising speed of the starship.
8	Plasma is building up in one warp nacelle, causing a differential subspace gradient to develop.
9	Warp coils tear free from their mounts while at warp, dropping the vessel from warp and causing severe nausea for the crew.
10	The starship's warp field has a steep field gradient, allowing interstellar gas and dust to get trapped along the outer edges of the field, fluorescing like a neon bulb.
11	Through manufacturing defects or damage, the ship's warp coils can't produce a strong enough field to enter warp while within 1 AU of a stellar scale body.
12	The warp coils and the ship's structural integrity field are out of synch by picoseconds, resulting in a feeling of weightlessness when exiting warp.
13	The warp field resonates at a frequency that makes telepaths on board hear a siren-like wail while active.
14	Imbalance in the coils makes everyone feel like they are spinning on board, faster as the ship increases speed.
15	Damage to the coils makes the field collapse and produces a feedback pulse damaging the ship's structural integrity field.
16	Newly installed coils cause euphoric effects in humanoids when operating close by, even at standby power.
17	The warp coils have sprung a leak, leaving a glowing trail of plasma and highly ionized deuterium for light-days behind the starship.
18	Misalignment causes subspace interference and blocks subspace communication.
19	Wear and tear on the subspace coils require an increasing amount of time for the ship to form a stable warp bubble.
20	Severe damage to the nacelles cause a rapid collapse of the warp field, producing a subspace singularity, trapping the crew inside a slowly collapsing pocket universe.

.:CHAPTER 8.4

OTHER SHIP SYSTEMS

"GRAVITY IS FOREMOST ON MY MIND."

- CAPTAIN JAMES T. KIRK

IN ADDITION TO THE SHIPBOARD SYSTEMS discussed, there are other key systems designed to keep you and your crew healthy, functional, and successful.

This subchapter discusses several such systems, including **artificial gravity**, **communications**, **inertial dampers**, **life support**, and **sensors.**

ARTIFICIAL GRAVITY

ARTIFICIAL GRAVITY IS GENERATED by small devices distributed through the entire habitable volume of a starship.

By the 24th century, advancements in graviton transmission and polarization methods allowed smaller scale control over artificial gravity. Where once a large section of a starship would have to remain at the same perceived gravity, individual cabins and rooms could have tailored gravity, allowing species that evolved in lower or higher gravity than what was used for the overall setting to spend their off-duty times in a more comfortable environment.

Use the **Artificial Gravity Complications** table to randomly generate a problem with the artificial gravity system.

.: ARTIFICIAL GRAVITY COMPLICATIONS

D20	ARTIFICIAL GRAVITY COMPLICATION
1–4	The artificial gravity system fails due to power overload in the connected EPS grid, resulting in zero gravity throughout the ship.
5–8	The artificial gravity system fails due to a cascading power loss through the ship, causing portions of the ship to retain standard gravity and others with none.
9–12	Damage to the ship's structure results in the graviton waveguide connecting gravity generators to fail, making crew feel as though they are walking up and down inclines as they move through the ship.
13–16	Artificial gravity systems are damaged via an EPS overload and the graviton spin is reversed, causing everything in the ship to fall to the ceiling.
17–20	Damage to one section of the starship makes the graviton particle emitters in that section to shut down, causing the starship to react differently while maneuvering.

LT. COMMANDER BURK VEN JAXA

We have it easy nowadays. Back when each of the founding members of the Federation were strapping themselves to tubes of highly explosive fuel to get into space, we had to worry about extreme accelerations breaking our equipment or bodies, free fall while in deep space making our bones weaken, or having air scrubbers that weren't compatible between two parts of the spacecraft. Space isn't friendly; it's your engineers who maintain all the systems that keep you comfortable, breathing, and blissfully unaware of what's on the other side of that bulkhead.

RODRIGO GONZALEZ TOLEDO

INERTIAL DAMPERS

GRAVITY GENERATORS ARE USUALLY TIED INTO THE ship's inertial dampers and propulsion systems. During normal cruising operations, the artificial gravity remains with 'down' being perceived to be towards the deck. Having no sense of acceleration during maneuvers often caused disorientation in crew, so graviton generators were designed to pivot their field to allow the impression of ship maneuvers, but at a much lower acceleration than in reality. This feature suspends function during red alerts or when structural integrity and dampening system were under strain to allow a greater margin of error in those systems to protect crew health.

The inertial dampening field (IDF) and structural integrity field work together with the artificial gravity generators to help maintain the ship's hull and keep structural members intact under the extreme strain that can occur during standard space operations, and to maintain the crew's health while under extreme accelerations. When acceleration is planned through flight operations, the ship's IDF manipulates a weak subspace field that permeates the starship, countering the acceleration and allowing a starship to accelerate from a relative stop to full impulse without the crew or ship's structure experiencing the thousands of standard gravities they normally would.

Unplanned accelerations such as from debris impact or weapons fire is compensated for within milliseconds, but is often enough to cause severe shaking or oscillations. The structural integrity field allows for a stronger subspace field channelled through the spaceframe with waveguides, much like artificial gravity systems. This cancels out much of the mass and nearly all experienced strain on the ship's main structural members.

Use the **Inertial Damper Complications** table whenever you want to randomly generate a problem with the inertial damper system.

.:INERTIAL DAMPER COMPLICATIONS

D20	INERTIAL DAMPER COMPLICATION
1–4	Inertial dampers fail, requiring impulse maneuvering at extreme low power.
5–8	Damage to the inertial dampers flip their motion compensation, giving the crew the feeling of accelerating in the opposite direction.
9–12	Inertial dampers in one section of the ship are failing, and the crew must evacuate for normal maneuvering to occur.
13–16	One section of the starship has inertial dampers fail while under heavy impulse acceleration. The resulting collapse of bulkheads is stopped by emergency force fields.
17–20	While at warp, the starship passes close to an unmapped neutron star or micro black hole, causing the artificial gravity systems and inertial dampers to overload.

COMMUNICATIONS

COMMUNICATIONS AND SENSOR SYSTEMS ARE often intertwined on Federation starships, just as they were on old wet navy vessels with the use of radio and radar, both utilizing similar technology to either communicate or to gather information. Like those ancient seagoing vessels, without sensors or communications, a starship is blind and at the mercy of her environment.

Standard EM radio frequency communications require low amounts of power, and have a large enough bandwidth for data transfer that they are typically used for communications inside a starship, or data transfer from the main computer to personal workstations and PADDs. They are also used for line-of-sight communications from the ship in orbit to an away team or other planetary communications target.

Subspace communications have nearly no perceivable signal lag at distances found within a single star system at the expense of having orders of magnitude more power demand and requiring equipment on par with a starship's warp propulsion system to properly function. Subspace communications propagates from the transmitting starship at approximately 6 light-years per hour to a range of more than 20 light-years. The signal speed can be boosted further via subspace relay stations that can make subspace communications nearly instant as long as it is within that 20 light-year range of the relay. Outside of these volumes, vessels must sometimes wait hours or days for responses.

Use the **Communications Complications** table whenever you want to randomly generate a problem with the communications system.

.:COMMUNICATIONS COMPLICATIONS

D20	COMMUNICATIONS COMPLICATION
1–2	Subspace communications is jammed due to subspace static.
3–4	Normal subspace communications chatter is interfering with long range sensor use due to constructive interference.
5–6	Subspace communication bandwidth is reduced to transceiver maintenance.
7–8	Standard EM communication systems burn out due to system damage, putting more demand on subspace comms and requiring data management to help with information transfer.
9–10	Subspace communications are frequency shifted due to nearby subspace phenomena affecting signal speed.
11–12	High EM interference in local space makes standard EM comms useless, putting a burden on subspace comms.
13–14	Highly charged particles from subspace or realspace are interfering in communications and causing errors to creep into the messages.
15–16	Subspace communication bandwidth is limited due to subspace distortions, making only text transmissions possible.
17–18	Subspace distortions are allowing only old radio signals to be received from ancient Andoria.
19–20	A rare subspace inversion causes comms to be received both reversed and out of order temporally.

LIFE SUPPORT

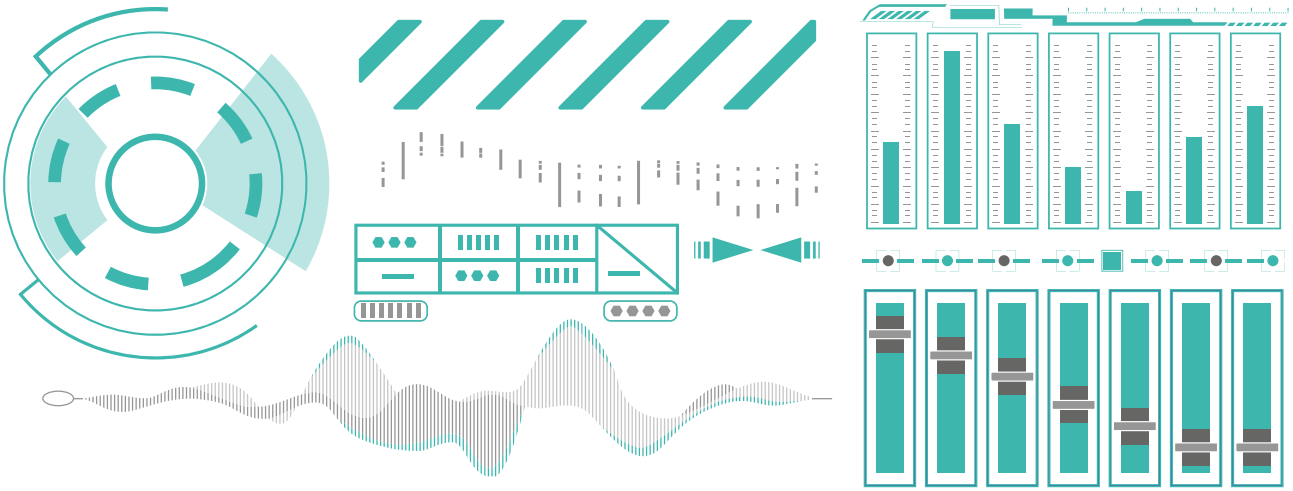
WITHOUT A BREATHING CREW, A STARSHIP IS A VERY complex tomb, or so the saying goes. Along with the inertial dampening system, life support is the most important system on a starship. Even the most primitive starship with the smallest crew has a life support system with multiple redundancies, and with a myriad of ways of accessing the systems for repair. Most starships have more than one independent system to ensure that if one entirely fails, the others can increase output to allow the crew time to repair or move to habitable sections of the vessel.

Most vessels have two separate atmospheric systems, with a third type coming into use with replicators. Each vessel's primary atmospheric processing is with photosynthetic processing units, essentially single-celled phytoplankton and multicell algae. The ship's atmosphere is passed through these semi-enclosed systems, allowing the photosynthetic life to process out carbon dioxide and expel fresh oxygen. The oxygen-rich atmosphere is then extracted from the system and passed back into circulation. Additionally, the heated water column inside these bioprocessing chambers allows the atmosphere to remain heated to a comfortable temperature and to contain appropriate humidity. A side benefit of this system is that during downtime maintenance every 3 days, excess growth is removed from the tanks and either used to fertilize and enrich hydroponics sections, or are used directly as foodstuffs by the crew. Processed solid and liquid waste is also be passed through these tanks to help fertilize the system and reduce the strain on other waste processing systems.

The secondary chemical system is meant for short term use, when the primary bioprocessing is either undergoing widespread maintenance, or has suffered extensive damage. These systems are inefficient and are usually only tied to shelter areas as using them across the entire ship's habitable space would be dangerous and even more inefficient. These systems often contain a chemical substance that reacts with carbon dioxide and removes it from the atmosphere such as lithium hydroxide. Low oxygen levels are compensated with exothermic chemical reactions such as the decomposition of sodium perchlorates. These emergency reaction vessels are located in large water tanks to allow the heat to dissipate into the liquid, and also slowly radiate that energy out into the vessel if temperature controls are unavailable. Small craft often only included chemical scrubbers and compressed gasses, not having the volume to allow for the larger photosynthetic processing units.

A final system was rarely used and that is direct replication of either breathable atmosphere or chemical scrubbers. Replicators have emergency oxygen tanks, pressure suits, and chemical heaters as easily accessible options, but the energy demands of replication makes production of these emergency supplies for a whole starship for more than brief periods nearly impossible. In addition, in situations where the other two multiply redundant systems for life support have failed, the power required to perform a last-ditch replication survival method is almost always unavailable.

Use the **Life Support Complications** table whenever you want to randomly generate a problem with the life support system.



.:LIFE SUPPORT COMPLICATIONS

D20	LIFE SUPPORT COMPLICATION
1	The photosynthetic algae tanks are infected with a life-form that consumes the algae.
2	Shielding around the algae tanks fails and allows hard radiation to destroy the organisms inside.
3	The atmospheric plenum systems that control the relative humidity in the starship are damaged and the amount of moisture increases to rainforest-like levels.
4	The atmospheric processors are unable to parse the requests for personalized atmospheres in quarters, setting the whole ship to have the conditions of late 22nd century Mars, thin air and low oxygen.
5	The water scrubbers for Cetacean Ops fail, allowing salt water to erupt on decks below the quarters and work area for the water-dwelling mammals.
6	Solid waste processing suffers catastrophic damage, making specific decks untenable for habitation.
7	Life support cannot keep up with demands on it to reduce heat from nearby stellar phenomena, resulting in outer areas of the starship needing evacuation.
8	Total atmospheric processing failure, with carbon dioxide poisoning possible within the next 3 days.
9	A hull breach vents a large portion of the starship's available potable water supply into space, spreading the material over cubic AUs and requiring the crew to replenish at a nearby comet.
10	A high energy discharge inside the ship causes toxic levels of nitrous oxide to form.
11	The atmospheric pumps on deck 3 rattle incessantly.
12	A combination of failures results in conditions beginning to resemble the interior of a Borg Cube, causing people to become concerned for a non-existent Borg presence.
13	The distribution network for the atmospheric processors is damaged, causing atmospheric pressure to back up in certain areas of the ship.
14	The atmospheric controls for non-Class-M environments is destroyed, putting the crew members that rely on them at risk of severe health problems.
15	A computer malfunction in environmental controls sets the environment in any given room to the native environmental conditions of the highest-ranking person present.
16	A breach in the distribution network forces a majority of the ship's processed atmosphere through a single Jefferies tube on deck 9, producing hurricane strength winds inside the tube.
17	Computer damage sets environmental lighting to mimic a 3-hour long day/night cycle.
18	All visual lighting systems fail, making the ship dark except for LCARS and emergency wristlights.
19	Waste water processing backs up into the aquaculture bay, ruining any natural food being produced there.
20	Emergency bulkheads and force fields fail due to severe damage, making some pockets of the ship hold atmosphere, while others are exposed to vacuum.

SENSORS

STARSHIP SENSORS FOLLOW THE SAME PATTERN AS communications with two separate systems often paired together to allow for an increase in resolution and accuracy. Short-range sensors rely on light-speed EM and real-space particle analysis. As one example, multiband optical telescopes and visual feeds are paired with long-range, narrow angle subspace active EM scanners that can allow visual data to be transmitted to the main viewscreen on the bridge and accurately show an approaching starship light-hours away. Sensors cover every frequency range, and often have wide areas where multiple sensors cover the same range for redundancy. These sensors, when paired with long range sensors, provide higher resolution data, allowing more information to be gathered.

Like communications, regular EM sensors require much less power and can act as passive collectors of data. These are the sensor systems that will often be the first to detect a Class-M planet at a range of several light years through spectrographic analysis of reflected light from the planet, radio waves detected from a civilizations technology or from a world's magnetic field, and even the wobble of a system's star from worlds orbiting it.

Long-range sensors are considered active sensors, and require a large amount of energy to power the subspace signals meant to carry the data. Nondirectional subspace sensor pulses can be detected dozens of light-years away, and even directional ones can still be detected easily within light-months. Much like subspace communications, long-range sensors still take time to move through space, though at a faster speed than communications signals.

Use the **Sensor Complications** table whenever you want to randomly generate a problem with ship-mounted sensor systems.

▷ STRANGE SENSORS

The sensors listed here are but a few of the types members of Starfleet can run across in their exploration. One major type of sensor is chronometric, or temporal, sensors. Chronometric sensors detect the passage of time and how time is flowing. As this is related to space, such sensors can be found with systems on a starship or in use by polities that manipulate the passage of time, such as around computer cores in Starfleet vessels or other temporal agencies. Temporal sensors scan forward and backward in time using tachyons. These sensors can detect transtemporal travel as time travelling starships are moving towards or away from the current relative present. They can also, to some extent, temporally scan objects in normal space nearby.

.:PERSONAL LOG

LIEUTENANT (JUNIOR GRADE) RASHID KEMAL

Don't ever tell Tennan I said this, but he's a steely-eyed missile man. Back at the dawn of the 20th century "Space Age," that's what they used to call people who came through when times were tough, and Laniyar just did that in a big way.

After their ships arrived, we just sort of sat there in space, staring at each other, before Tennan yells, "I can understand them!" We'd finally gotten close enough he could read their thoughts with that Betazoid brain of his, and was able to get across our translation difficulties. Then he takes over the communications station and just starts slamming in this ridiculous string of instructions to the computer. The next thing we know, Commodore Xen is talking to Peruzimer, First Minister of the Imhofami Enclave.

We've been invited to their planet, so things are off to a great start. They seem as interested in us as we are in them, and their ships look amazing. I wonder if they'll let me fly one?

I love this job.

.: SENSOR COMPLICATIONS

D20	SENSOR COMPLICATION
1	Subspace sensors are fuzzy due to interference from a distant quasar pulse.
2	The ship's warp field is distorting long range sensor returns into a broad spectrum, resulting in increased computer processing time to process.
3	Resonance with the subspace communications chambers coil is resulting in large sensor blind spots.
4	Lowered long range sensor resolution due to gravimetric sheer.
5	Subspace energy isolclines are reflecting sensor beams away from starships travelling faster than warp 7, making them undetectable in this region.
6	Structural damage has effectively blinded the sensors on one side, requiring maneuvering to get full sensor coverage until the damage is repaired.
7	Planetary sensors are blinded by directed EM emissions, dazzling optical and infrared optical telescopic arrays.
8	Defensive shielding is interfering in accurate collection of the standard EM sensor pallets.
9	Charged particles from weapons fire have accumulated on the exterior of the ship and are intermittently blinding EM sensors.
10	High reflectivity of a planetary body blinds the EM sensors typically used for visual orbital observations.
11	Rapid fluctuations in the ship's warp field makes subspace sensors inaccurate.
12	Subspace lensing effects on long-range sensors are occurring because of a transwarp conduit passing within 20 light years.
13	A rapidly moving object at warp is passing near a massive real-space object, causing strangely dopplered subspace sensor returns.
14	The region of space the starship is passing through has micro subspace fractures from heavy warp travel, reducing long range sensor resolution.
15	Subspace-based sensors return readings based on a nearby parallel universe with identical stellar and planetary bodies.
16	Damage has decoupled the subspace and EM sensors, making sensor echoes that need to be tied together.
17	Overwhelming input in one frequency range to the sensors gives false readings to nearby frequency ranges.
18	An experiment using low power subspace communications to provide low resolution subspace sensor returns is making the normal subspace sensors onboard the ship noisy.
19	Sensor pallet damage requires EVA operations to replace and remount new pallets.
20	Gravimetric distortion is skewing sensor returns away from detecting objects in the path of the starship.

Index

Alien Language Encounters 49
Allied Energy Weapons 100
Andorian Plasma Pistol (circa 2150) ... 100
Andorian Plasma Rifle (circa 2150) 100
Andorian Ushaan-tor 95
An Engineer's Domain 108
Artificial Gravity Complications 121
Auditory Processor 78
Autosuture 72
Away Team Complications 64
Away Team Encounters 63
Away Teams 61

Bat'leth 94
Biobed 71
Biobed Complications 71
Biosynthetic Limb 78

Cargo Transporters 85
Character Options 8
Choosing Values 82
Chronometer 56
Communicator Complications 37
Complications
Artificial Gravity Complications ___ *121*
Away Team Complications ____ *64*
Biobed Complications ____ *71*
Communications Complications __ *123*
Communicator Complications ____ *37*
Computer System Complications __ *89*
Defensive Shield Complications __ *111*
Diplomatic Complications ____ *47*
Holodeck Complications ____ *32*
Impulse Drive Complications ____ *117*
Inertial Damper Complications ____ *122*
Life Support Complications ____ *125*
Medical Tricorder Complications ___ *73*
Melee / Edged Weapon Complications ____ *95*
Navigational Deflector Complications ____ *112*
PADD Complications ____ *35*
Reaction Control System (RCS) Complications ____ *116*
Replicator Complications ____ *40*
Sensor Complications ____ *127*
Starship Energy Weapons Complications ____ *113*
Transporter Complications ____ *86*
Tricorder Complications ____ *59*
Turbolift Complications ____ *87*
Warp Drive Complications ____ *120*
Computer Core 88
Computer Memory 88
Computer System Complications 89
Cortical Inhibitor 72
Cortical Stimulator 72
Cranial Observation and Control Implant 78
Cybernetics 77
Cytoplasmic Stimulator 72

Dathe'anofv-sen 95
Defensive Shield Complications 111
Defensive Systems and Weapons 110
Dermal Stimulator 72
Detached Nacelles 42
Detronal Scanner 72
Digital Engineering 82, 88
Diplomacy 46
Diplomatic Assets 45
Diplomatic Complications 47
Diplomatic Corps 46
Disruptor (Discreet) (circa 2280) 102
Disruptor Pistol (circa 2150) 101, 103
Disruptor Pistol (circa 2260) 102
Disruptor Pistol (circa 2266) 103
Disruptor Pistol (circa 2270) 102
Disruptor Pistol (circa 2360) 103
Disruptor Pistol (circa 2370) 104
Disruptor Rifle (circa 2150) 101
Disruptor Rifle (circa 2270) 102
Disruptor Rifle (circa 2360) 103
Disruptor Rifle (circa 2370) 104
Distress Calls 52
D'k tahg 94
Drugs and Their Treatments 74
Drugs and Treatments Table 74
Dualitic Inverter 90

Electromagnetic Pistol Model - EM-33 (circa 2130) 96
Emergency Medical Hologram 32, 33
Emergency Transponder 56
Energy Weapon Complications 101
Engineering 101 82
Engineering Technology 81
Engineering Toolbox 90
Enhancement vs. Augment 77
Enlisting in Other Organizations 60
Exocomp 56

Faster Than Light Propulsion 118
Federation Cybernetics Through History 78
Federation Starfleet - 23rd Century 96
Flux Coupler 90
Focal Adjustment Spanner 90

Genetic Engineering 77
Genetronic Replicators 77
Gin'tak 94
Gravitic Caliper 90

Hirogen Scythe 95
Holo-Addiction 32
Holodeck 31
Holodeck Complications ____ *32*
Holograms 30
Holographic Control Interfaces 33
Holographic Medical Officer 42
Holographic Technology 30
Holography 30
Holosuites 32
Hover Chairs 76
Hyperspanner 90

Impulse Drive 117
Impulse Drive Complications 117
Inertial Dampers 122, 123, 124
Introduction 2
Ionic Flow Regulator 90
Isolinear Chips 88
Isolinear Optical Storage 57

Jem'Hadar Kar'takin 95

Klingon Empire 94
Kur'leth 94
Kut'luch 94

Laser Pistol (circa 2250) 96
Life Support 109
Life Support Belt 57
Life Support Complications 125
Linguacode 48

Magnetic Probe 90
Mechanical Engineering 82, 83
Medical Devices 70
Medical Enhancements 76
Medical Shotgun 73
Medical Technology 69
Medical Treatments 74
Medical Tricorder 72
Mek'leth 95
Melee Weapons 94
Micro-resonator 91

Narrating Warp Speed 118
Navigational Deflector 112
Neural Calipers 73
Neural Interface 78
Neural Stimulator 73
Neural Transducer 73
New Career Events 8
Encountered a Rogue AI ____ *8*
Encountered a Spatial Anomaly ____ *9*
Encountered a Temporal Anomal ____ *9*
Experienced an Alternate Dimension *9*
Fellowship at an Elite Institution ____ *9*
Studied a New Power Source ____ *9*
Studied Archaeotechnology ____ *9*
Technological Catastrophe ____ *10*
Tested Transporter Improvements __ *10*
Worked on a Transwarp Project ____ *10*
New Talents 10
Augment and Cybernetics Talents __ *10*
Analytical Recall ____ *10*
Synthetic Physiology ____ *10*
Command Talents ____ *11*
Command & Control ____ *11*
Project Manager ____ *11*
Conn Talents ____ *11*
Fix 'Em and Fly 'Em ____ *11*
Hot Rod Shuttle ____ *11*
Engineering Talents ____ *11*
Custom Tools ____ *11*
Demolitionist ____ *11*
Wrote the Book ____ *11*
Medicine Talents ____ *13*
Combat Stimulants ____ *13*
Transformative Treatments ____ *13*
Science Talents ____ *12*
On the Shoulders of Giants ____ *12*
Rapid Calculation ____ *12*
The Power of Math ____ *12*
Security Talents ____ *12*
Calibrated Munitions ____ *12*
Tactical Countermeasures ____ *12*
Well-Maintained Arsenal ____ *12*
Non-Federation Characters and Campaigns 75
Non-Federation Defensive Shields 111
Non-Federation FTL Propulsion And Power 119
Non-Federation Reaction Control Systems 115
Non-Federation Science 65
Cardassians ____ *65*

Illyrians 66
Klingons 66
Sikarians 66
The Borg Collective 65
The Dominion 65
Non-Starfleet Campaigns 5
NPCs on Either Side 51

ODN Recoupler 91
Optical Data Network 88
Osteogenic Stimulator 73
Other Ship Systems 121
Other Types of Scanners 59

Parametric Scanner 91
Particle Rifle (circa 2153) 96
Pattern Enhancers 57
Pattern Enhancers in Play 57
Personal Access Display Devices (PADDs) 34
Can a PADD be Hacked? 34
Cardassian PADDs 34
Federation Starfleet PADDs 34
Ferengi PADDs 35
Klingon PADDs 35
PADD Complications 35
Romulan PADDs 35
Personal Communications 36, 50
Can You Hear Me Now? 37
Communicator Complications 37
Federation Starfleet Communications 36
Circa 2150 36
Circa 2255-2270 36
Circa 2270-2285 36
Circa 2285-2340 36
Circa 2340-2350 36
Circa 2350-2400 37
Personnel Transporters 85
Phase Disruptor Pistol (circa 2366) 103
Phase Disruptor Rifle (circa 2366) 103
Phase Modulator 91
Phase Pistol (circa 2151) 96
Phaser Rifle (circa 2264) 97
Phaser Settings 100
Phaser, Type 1 and Type 2 (circa 2285) 98
Phaser, Type 1 (circa 2255) 97
Phaser, Type 1 (circa 2266) 97
Phaser, Type 1 (circa 2360) 98
Phaser, Type 2A (circa 2290) 98
Phaser, Type 2 (circa 2255) 97
Phaser, Type 2 (circa 2266) 97
Phaser, Type 2 (circa 2270) 97
Phaser, Type 2 (circa 2360) 98
Phaser, Type 2 (circa 2366) 98
Phaser, Type 2 (circa 2385) 99
Phaser, Type 2 (circa 3189) 100
Phaser, Type 3a (Rifle) (circa 2373) 99
Phaser, Type 3 (Rifle) (circa 2255) 97
Phaser, Type 3 (Rifle) (circa 2366) 98
Phaser, Type 3 (Rifle) (circa 2370) 99
Phaser, Type 3 (rifle) (circa 2385) 99
Planetary Crisis 53, 87
Plasma Rifle (circa 2150) 96
Plasma Torch 91
Portable Pattern Buffer 86
Portable Replicator 42
Programmable Matter 42
Propulsion Technologies 108, 115

Quantum Flux Regulator 91

Ranged Weapons 96
Reaction Control System (RCS) Complications 116
Reaction Control Systems 115
Reasons Why Sensor Scans Might Fail - External Issues 62
Reasons Why Sensor Scans Might Fail - Internal Issues 62
Recreation Room 31
Replicator Technology 38
Cardassian Replicators 39
Federation Starfleet Replicators 38
Matter Synthesizer (circa 2255) 38
Protein Resequencer (circa 2150) 38
Replicator (circa 2360) 38
Replicator (circa 3190) 38
Ferengi Replicators 39
Klingon Replicators 40
Replicator Complications 40
Romulan Replicators 40
Yes, Replicators Do Have Limits 40
Retinal Tricorder 59

Scanning Apparatus 58
Scientific Equipment 55
Self-sealing Stem Bolt 91
Sensor Complications 127
Sensors 126
Sensors And Communication 109
Sensor Systems (Non-Starship) 61
Sickbays and Infirmaries 71
Sonic Separator 73
Standard Equipment 29
Starship Details 94, 96, 105
Starship Energy Weapons Complications 113
Starship Technologies 107
Strange Sensors 126
Sublight Propulsion 115, 121
Subprocessors 88
Subvocal Processor 78
Supervisory Characters 85
Supplemental Game Mechanics 7
Supplement Structure 4
Support Chairs 76

Tactical Gear 105
Tactical Simulation Training 31
Tan qalanq 95
Technologies of the 32nd Century 42
Telefocals 57
Tetryon Pistol (circa 2374) 104
Tetryon Rifle (circa 2374) 104
The Efficacy Of Holograms In Medicine 75
The Ever-Expanding Star Trek Canon 3
The Jem'Hadar 104
The Purview of Diplomats 46
The Right Tools for the Job 2
Tools of the Medical Trade 72
Torpedo Complication 114
Torpedo Weapons 112, 113, 114
TR-116 (Rifle) (circa 2375) 99
Traits 59, 61
Transporter Complications 86
Transporter Lock 86
Transporter Operation 85
Transporters as Treatment 75
Transport Inhibiters 86
Tricom Badges 43
Tricorder 58
Tricorder Complications 59
Trident Scanner 91
Turbolift Complications 87

Uniforms 41, 43
Klingon Uniforms 41
Romulan Uniforms 41
Starfleet Uniforms 41
Universal Translator 48, 67
Universal Translator Complications 51
Using Maps and Miniatures 57
Using this Supplement 5

Vascular Regenerator 73
Visual Instrument and Sensory Organ Replacement 79
Vulcan Lirpa 95
Vulcan Phaser (circa 2380) 101

Warp Drive 118
Warp Drive Complications 120
Weapons 43
Weapons and Tactical Gear 93
What Can a Tricorder Do, Exactly? 60
Wheelchairs 76

Yesterday's Enterprise 4

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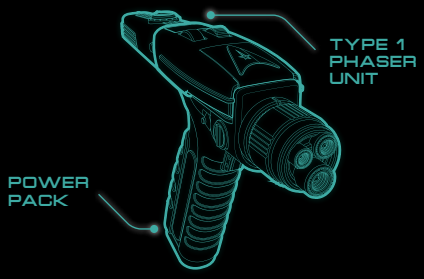
.:HANDHELD WEAPONS

KLINGON BAT'LETH
c800s

KLINGON
DISRUPTOR PISTOL
2256



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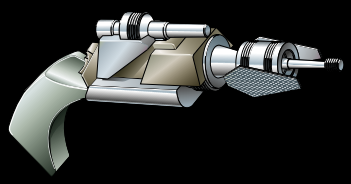
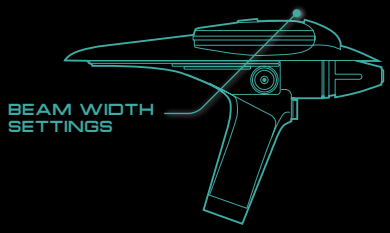
TYPE 2
SCHEMATIC VIEW

STARFLEET
PHASER 2266,
TYPE 2



KLINGON SONIC
DISRUPTOR PISTOL
2266



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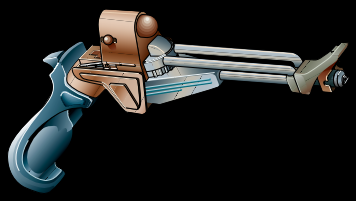
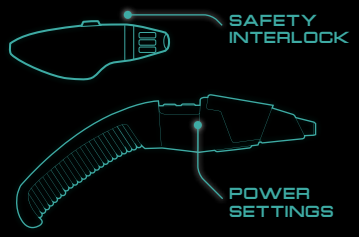
TYPE 2
SCHEMATIC VIEW



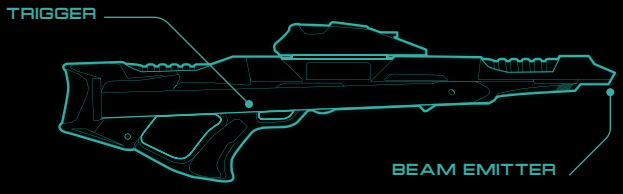
KLINGON
DISRUPTOR PISTOL
2285



STARFLEET
PHASER 2368,
TYPE 1 AND 2
SCHEMATIC VIEW

ROMULAN
DISRUPTOR RIFLE
2368

CARDASSIAN
PHASE-DISRUPTOR
RIFLE 2373



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2384, TYPE
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STARFLEET
PHASER 3190,
PROGRAMMABLE
MATTER

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.:PERSONAL COMMUNICATORS

STARFLEET COMMUNICATOR 2256
SCHEMATIC VIEW

KLINGON COMMUNICATOR 2268

STARFLEET COMMUNICATOR 2266

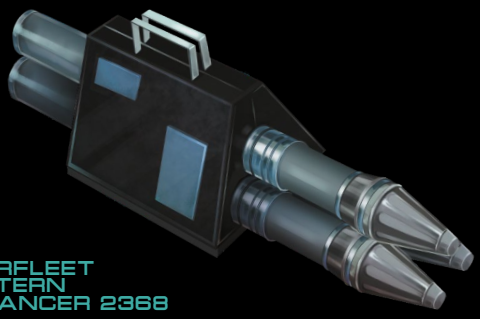
STARFLEET COMBADGE 2367

STARFLEET COMBADGE 2371
SCHEMATIC VIEW

CARDASSIAN UPLINK UNIT 2268

STARFLEET TRICOM BADGE 3190

.:MISCELLANEOUS EQUIPMENT

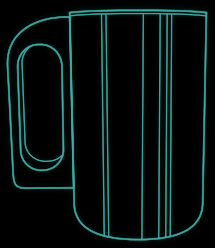


STARFLEET PATTERN ENHANCER 2368

ORION MULTI-KEY 2381

.:BEVERAGE CONTAINERS

STARFLEET HERBAL INFUSION IMBIBEMENT DEVICE 2369
SCHEMATIC VIEW



STARFLEET CAFFINATED SUSPENSION IMBIBEMENT DEVICES 2371
SCHEMATIC VIEW

CBS STUDIOS, INC., AUREA FRENIERE

THE RIGHT TOOLS FOR THE JOB

"THEN WE'RE DEALING WITH MORE THAN ONE CREATURE, DESPITE YOUR TRICORDER READINGS..."

– CAPTAIN JAMES T. KIRK

From its inception, *Star Trek* has illustrated humanity and its allies and adversaries exploring the Galaxy with a wide variety of tools and technologies at their disposal. From tricorders to phasers, deflector dishes to replicators, all the key technological achievements of the future are detailed in this book.

This ***Technical Manual*** is essential reading for any casual *Star Trek* fan or hardcore gamer interested in learning more about the wondrous technologies, ships, and weapons available to Starfleet personnel as well as members of many other species inhabiting the *Star Trek* universe, including the Klingons, Romulans, and Orions.

Use the contents of this book to learn more about the gear, weapons, and technologies of the *Star Trek* universe, and to enhance the ***Star Trek Adventures*** missions and campaigns you engage in with your friends.

This ***Technical Manual*** contains:

- Details on the most commonly used gear across the *Star Trek* universe, including PADDs, communication devices, replicators, and holography.
- Insight on Starfleet's Diplomatic Corps, the universal translator, second contact supplies, and information on how a crew might respond to distress calls.
- A wealth of information on a wide variety of scientific gear, tricorders; and advice on conducting away missions and some of the gear an away team might utilize.
- Insight on diagnostic levels, transporters, turbolifts, and environmental and utility systems, as well as digital engineering elements, such as computer systems and their various components.
- Detailed information on a wide variety of melee weapons, ranged weapons, and body armor from across the *Star Trek* universe.
- Details on medical practices and medical gear, including sickbays, biobeds, medical treatments and drugs, guidance on using transporters to support treatment, and medical enhancements such as various forms of chair support, genetic engineering, and cybernetics.
- Information on key starship technologies and their components, including defensive systems and weapons, propulsion technologies, and life support systems.
- A wealth of new game mechanics, including 10 new character career event options and 16 new character talents; five new starship service records, 10 new starship talents, and mines as a new weapon type.
- More than 20 random complication tables designed to help you generate problems with specific situations and devices during your missions.

This second edition supplement is compatible with first edition ***Star Trek Adventures*** and the ***Captain's Log Solo RPG.***

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